ALLEN&HEATH

XONE:U6

User Guide

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Whilst we believe the information in this guide to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

CE This product complies with the European Electromagnetic Compatibility directives 89/336/EEC & 92/31/EEC and the European Low Voltage Directives 73/23/EEC & 93/68/EEC.

This product has been tested to EN55103 Parts 1 & 2 1996 for use in Environments E1, E2, E3, and E4 to demonstrate compliance with the protection requirements in the European EMC directive 89/336/EEC. During some tests the specified performance figures of the product were affected. This is considered permissible and the product has been passed as acceptable for its intended use.

Allen & Heath has a strict policy of ensuring all products are tested to the latest safety and EMC standards. Customers requiring more information about EMC and safety issues can contact Allen & Heath.

NOTE: Any changes or modifications to the console not approved by Allen & Heath could void the compliance of the console and therefore the users authority to operate it.

ALLEN&HEATH

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http://www.allen-heath.com

Important Safety Instructions – Read First

Read instructions: Read and retain these instructions for future reference. Read the instructions on the Safety Sheet provided separately. Adhere to all warnings printed here and on the console and its power unit.

Covers: Do not remove the power unit cover. Operate the console with its cover correctly fitted. Disconnect mains power by unplugging the power cord if you need to remove the console cover to set option jumpers. Refer servicing work to competent technical personnel only.

Mains power: Connect the console power unit to a mains power supply only of the type described in this user guide and marked on the unit. The power source must provide a good ground connection. Do not remove or tamper with the ground connection in the power cord. Use the power cord with sealed mains plug appropriate for your local mains supply as provided with the console. Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against it.

Installation: Install the console and its power unit in accordance with the instructions printed in this user guide. Do not connect the output of power amplifiers directly to the console. Use audio connectors and plugs only for their intended purpose.

Ventilation: Ensure adequate ventilation around the console and its power unit. Do not obstruct the ventilation slots or position the unit where the air flow required for ventilation is impeded.

Moisture: To reduce the risk of fire or electric shock do not expose the equipment to rain or moisture or use it in damp or wet conditions. Do not place containers of liquids on it which might spill into any openings.

Environment: Locate the units away from direct sunlight and any equipment which produces heat such as power supplies, amplifiers and heaters. Protect from excessive dirt, dust, heat and vibration when operating and storing. Avoid tobacco ash, drinks spillage, and smoke, especially that associated with smoke machines. Do not mount the power supply on any surface subject to resonance or vibration.

Handling: To prevent damage to the controls and cosmetics avoid placing heavy objects on the console surfaces, scratching the surface with sharp objects, or rough handling and vibration. Protect the controls from damage during transit. Use adequate packing if you need to ship the unit.

Important Note on Mains Voltage Setting

The power unit has two mains voltage settings. Check that your unit is correctly set to work with your local mains voltage. This is marked on the power unit rear panel. The setting cannot be changed by the user. Refer this work to your service agent.

115V to 230V AC auto-sensing (most of the world)

100V AC fixed (Japan)

Important Mains Plug Wiring Instructions

The console is supplied with a moulded mains plug fitted to the AC mains power lead. Follow the instructions below if the mains plug has to be replaced.

The wire which is coloured Green/Yellow or Green must be connected to the terminal in the plug which is marked with the letter E or with the Earth symbol.

This appliance must be earthed.

The wire which is coloured Blue or White must be connected to the terminal in the plug which is marked with the letter N.

The wire which is coloured Brown or Black must be connected to the terminal in the plug which is marked with the letter L.

Ensure that these colour codes are followed carefully in the event of the plug being changed.

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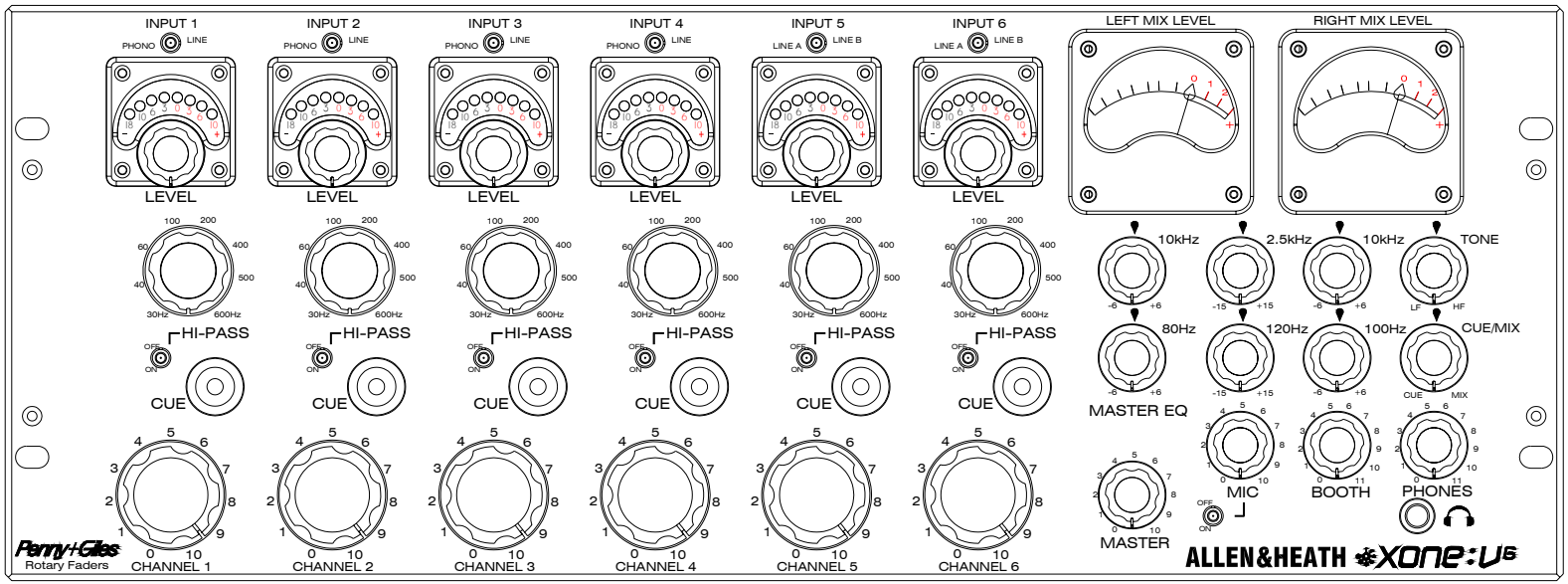
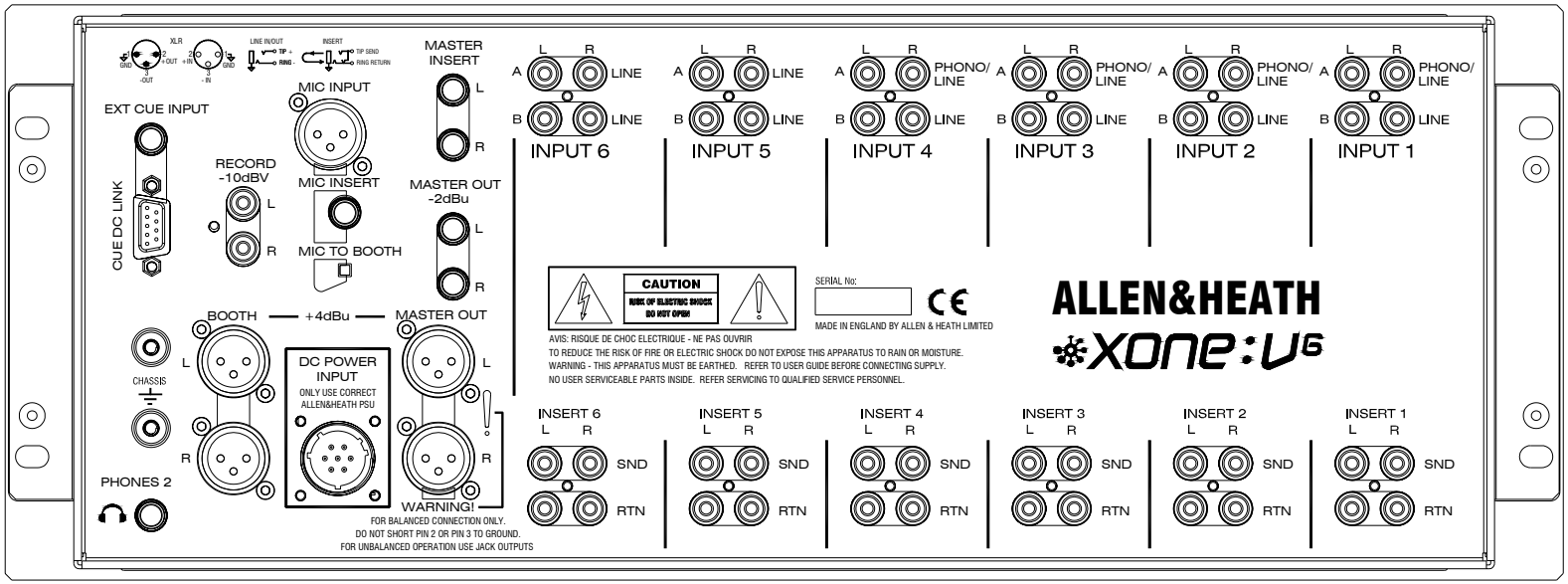

INPUT 1
INPUT 2
INPUT 3
INPUT 4
INPUT 5
INPUT 6
PHONO
LINE
LINE A
LINE B
LEVEL
HI-PASS
CUE
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
LEFT MIX LEVEL
RIGHT MIX LEVEL
10kHz
2.5kHz
TONE
80Hz
120Hz
CUE/MIX
MASTER EQ
MIC
BOOTH
PHONES
MASTER
Rotary Faders
ALLEN&HEATH XONE:V6


XLR
LINE IN/OUT
INSERT
MASTER INSERT
MIC INPUT
MIC INSERT
MIC TO BOOTH
EXT CUE INPUT
CUE DC LINK
RECORD -10dBV
MASTER OUT -2dBu
BOOTH
+4dBu
MASTER OUT
CHASSIS
PHONES 2
DC POWER INPUT
ONLY USE CORRECT ALLEN&HEATH PSU
WARNING!
FOR BALANCED CONNECTION ONLY.
DO NOT SHORT PIN 2 OR PIN 3 TO GROUND.
FOR UNBALANCED OPERATION USE JACK OUTPUTS
INPUT 6
INPUT 5
INPUT 4
INPUT 3
INPUT 2
INPUT 1
LINE
PHONO/ LINE
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
AVIS: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.
WARNING - THIS APPARATUS MUST BE EARTHED. REFER TO USER GUIDE BEFORE CONNECTING SUPPLY.
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
SERIAL No:
MADE IN ENGLAND BY ALLEN & HEATH LIMITED
ALLEN&HEATH XONE:V6
INSERT 6
INSERT 5
INSERT 4
INSERT 3
INSERT 2
INSERT 1
SND
RTN

Welcome to the XONE:V6

The XONE:V6 is an audiophile rotary club mixer that sets a new quality benchmark. It is an echo of the earliest days of pro audio when pioneering individuals hand crafted outstanding products free from the constraints of cost and time. We revisited the basics of audio circuit design restoring the simple purity of a minimum signal path meticulously constructed from the finest discrete components. The result is a console that gives great recordings the space and freedom to express their true warmth and clarity.

The main circuits use carefully selected transistors instead of ICs to ensure the shortest signal path and high voltage rail operation for massive headroom. The lower open loop stage gain means minimum negative feedback resulting in reduced intermodulation distortion of the complex waveforms typical of music. The all important RIAA input stage uses paralleled audio grade JFETS and a composite passive equalisation network which maintains low noise and very high input impedance constant with frequency. Similar care has been taken with the input preamps using JFETS in a classic long tailed pair configuration and a Class A mosfet output stage which replaces the busy integrated op-amp typically found in modern preamps. Two of the channels feature valve inputs producing the distinctive second harmonic distortion which helps warm up clinical sounding sources such as CD. As much time has been spent carrying out 'golden ear' listening tests as performance logging in the laboratory. The result is the simple assurance that you will hear every nuance of the music you mix.

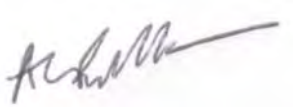
The same attention to quality detail is applied to the construction. The face plate is machined from 6mm thick bead blasted aluminium. The main VU meters are a very rugged and accurate original 1950's British telecom design. The vintage durability is also reflected in the choice of the knobs and switches.

The **XONE:V6** also features the best in modern technology and engineering excellence. The top of the range, oil damped rotary faders are made by Penny & Giles, a British company renowned for its fader expertise. Not only are the controls guaranteed to give you the finest mix precision, they will also give you the longest term service. The power unit also benefits from the finest in linear design for a rock solid bottom end and utmost clarity.

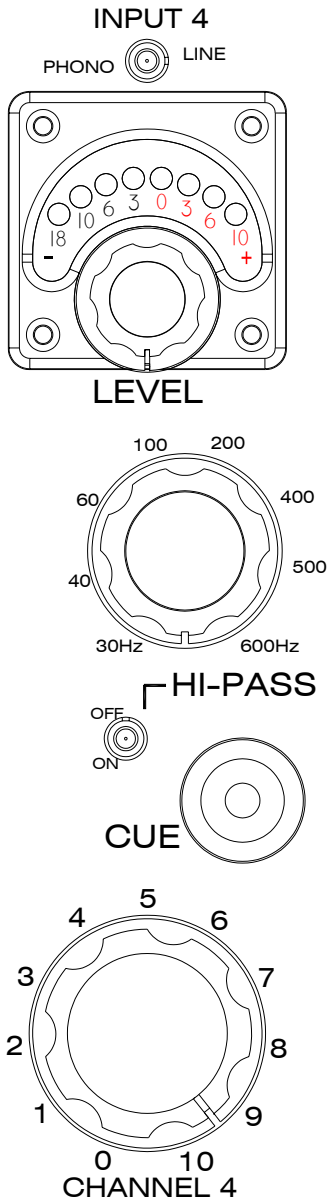
The 6 input channels each have two selectable stereo inputs. CH1-4 include selectable RIAA and line inputs. CH5 and 6 feature stereo line valve preamps. Rear panel inserts are provided for patching in external processing. The channel hi-pass filters use large rotary controls for performance mixing. The microphone channel has a balanced XLR input with selectable phantom power, vocal optimised EQ, insert point, on/off switch, and the ability to route to the booth if required.

Balanced XLR master and booth stereo outputs are provided. The master output is also available on unbalanced TRS jack, and includes an insert point. The recording output is taken from the booth mix. Two band EQ is available on both the master and booth outputs. The cue system feeds both front and rear headphones sockets. The channel cue switches auto-cancel for fast action, and the cue/mix rotary fader lets you audition how a source will sound when added to the mix. The tone control helps you lift the sounds you want to check in your headphones. Various internal jumpers are provided so you can set preferred source selection and operating levels.

We hope you enjoy using the **XONE:V6** as much as we have enjoyed designing it.



Andy Rigby-Jones, the designer



Channel Controls

6 Input channels are provided. Each has switchable inputs for two stereo sources. CH1-4 provide line and phono (RIAA) inputs. CH5 and 6 feature valve preamps and have two switchable line sources each. All channels provide insert points for patching in additional equipment. Internal jumper options let you change the gain settings and switch out the RIAA equalisation.

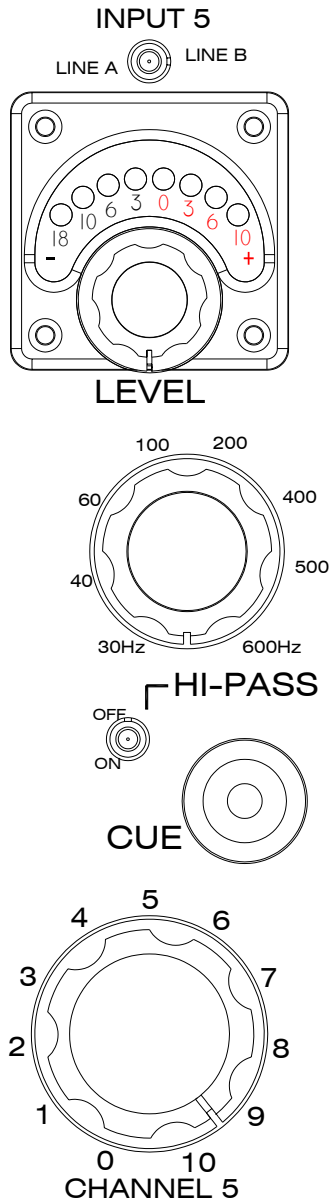
Phono / Line select CH1-4 This toggle switch selects the PHONO input in its left position, or the LINE input in its right position.

Line A / Line B select CH5,6 This toggle switch selects the LINE A input in its left position, or the LINE B input in its right position.

RIAA The PHONO input passes through an RIAA equaliser. This compensates for the response of the turntable pickup cartridge and results in the desired flat frequency response. Note that the RIAA equaliser can be bypassed using internal option jumpers if you want to use the inputs for additional line sources instead.

Valve preamps The CH5 and CH6 preamps provide the warm, musical sound associated with the characteristically strong second harmonic distortion associated with the valve circuit.

Meter This has 8 LEDs which display the level from -18dB to +10dB relative to the normal 0dB operating level. It is peak responding so that it can accurately display fast music peaks. The stereo L and R signals are summed to feed the meter display. Turn back the LEVEL control if the red '+10' LED lights. Although there is still plenty of headroom above this level, it is important to prevent very high channel levels which could overload the mix if several sources are being mixed together.



Level Adjusts the input sensitivity from fully off to its maximum +10dB gain. Correct use of this control makes it impossible to overload the input preamp. Adjust it so that the meter averages around '0' with loudest peaks up to '+6'. Note that there are internal option jumpers to reduce the maximum gain available to +6 or 0dB.

Hi-Pass filter A variable frequency 12dB per octave filter can be switched in or out of the channel signal path using the ON/OFF switch. The cut off frequency can be swept from 30Hz to 600Hz. The large rotary provides fine control during performance.

Cue Press this button to route the channel signal to the headphones. The integral blue LED lights when it is active. An 'intelligent' cue system is provided for quick and easy channel monitoring during performance. The cue switches are cleared when the console is powered on. The following is possible:

Latching action - Press once to turn it on, press again to turn it off.

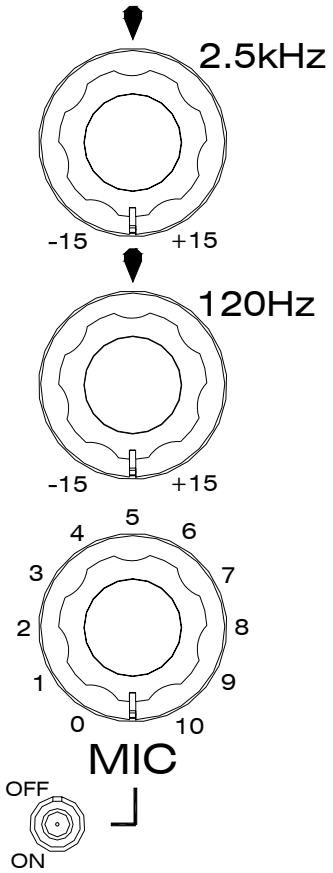
Momentary action - Press and hold for longer than 2 seconds. Cue turns off when you release your finger.

Interlocking action - Press one to turn the previous selection off. This way you can quickly switch from one to another channel.

Adding action - Press two or more at the same time.

Rotary Fader Each channel has a large rotary fader for precision control of its level when mixing. This type of control provides far greater accuracy than the typical linear fader found in most DJ mixers. It uses the renowned Penny & Giles oil-damped potentiometer for smooth movement, accurate control and long life. The rotary ranges from fully off when anti-clockwise to fully on at unity gain (0dB) when clockwise. For best performance operate these controls near to their fully clockwise position for normal music level.

Microphone Controls



A DJ microphone can be plugged in. A professional quality balanced dynamic vocal type is recommended. Phantom power can be internally enabled if a condenser type is preferred. The mic can be switched into the master mix, booth mix, and routes to the cue monitor. An insert is available for patching in processors such as a limiter or compressor.

Mic on/off Switch the microphone into the master mix using the ON/OFF toggle switch. Depending on the position of the rear panel MIC TO BOOTH switch, the signal may also appear in the booth mix. When the mic is switched off, its post fade signal is automatically sent to the cue mix for monitoring.

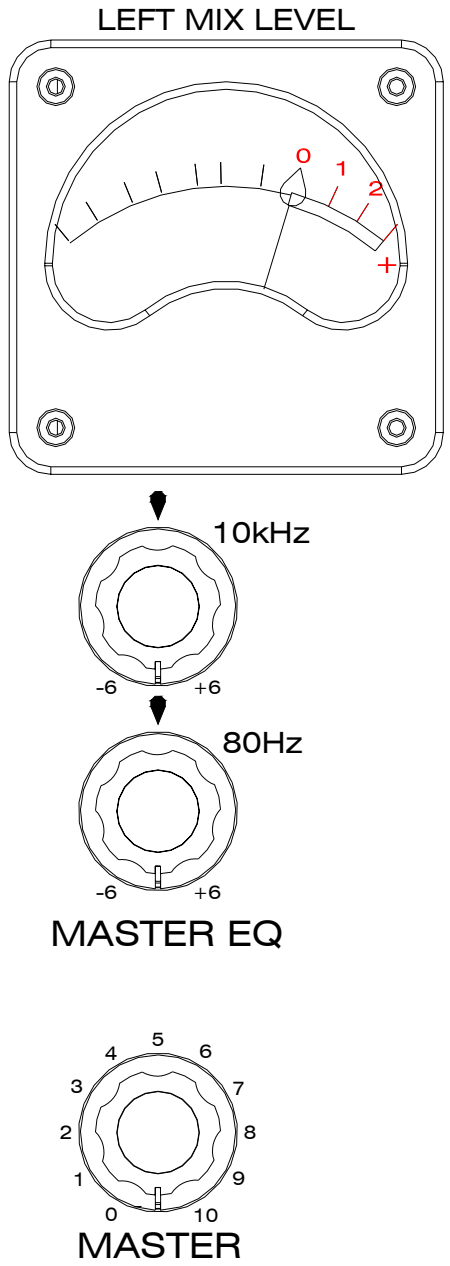
Mic level Controls the level of the microphone from fully off to a maximum +60dB gain. Typical operation with a dynamic vocal mic is around the 2 to 3 o'clock position.

Hi-pass filter A hi-pass filter is built in to help remove handling noise and the popping associated with the close mic proximity effect.

Mic EQ Two controls adjust the frequency response of the mic channel. 2.5kHz is a shelving HF control, 120Hz is a shelving LF control. Both provide up to 15dB cut or boost. The response is flat at the centre positions. Where possible use only small amounts of EQ, and cut rather than boost.

A small amount of HF boost can improve the intelligibility of vocals over the mix, adding brightness. Use HF cut to remove harshness. A little LF boost can add punch to the male voice. Use LF cut to reduce boominess and LF noise.

Phantom power An internal option jumper is provided to enable +30V phantom power to the mic input XLR. Only use this if it is required, for example with certain condenser mics. Do not use it with unbalanced connections.



Master Controls

The Master is the main output that feeds the house sound system. An overall level control together with 2-band equaliser is provided. External processing equipment such as a limiter or house EQ can be inserted into the master mix signal path.

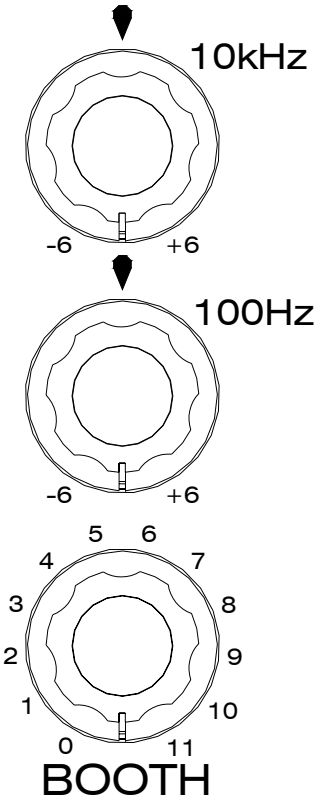
Main meter Two lamp-illuminated moving coil VU meters display the left and right signals. The needle movement accurately follows the VU (volume unit) standard. It displays the average signal level. The meter is post master EQ and pre MASTER level control so that you can keep a check on the console mix level regardless of house volume. Refer to the notes on Operating Level and meters later in this guide.

Master EQ Two controls adjust the frequency response of the overall mix. 10kHz is a shelving HF control, 80Hz is a shelving LF control. Both provide up to 6dB cut or boost. The response is flat at the centre positions. Where possible use only small amounts of EQ, or none at all. The LF control is tuned very low to boost frequencies well below the 80Hz turning point. This lets you bring out thumping lows from big system subs without wooliness.

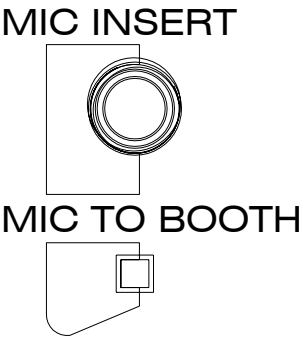
These controls should be used for performance rather than room or equipment compensation. If the system has been properly specified and installed then it should reproduce the music with an accurate flat response. Rear panel insert points are provided for patching in processing equipment such as equalisers needed for room compensation.

Master level Controls the overall level of the house mix. It ranges from fully off to 0dB unity gain. For normal operation it should be used near to or at its fully clockwise position. The XLR delivers +4dBu output level when the MASTER level is fully clockwise and the VU meters read ‘0’. This should match most systems. Internal option jumpers are available for 0dBu operation if preferred.

Booth Controls



The DJ's local loudspeakers are fed from the console BOOTH output. The booth mix is sourced from the master mix. It is derived post insert so that the DJ hears exactly what is being fed to the house system. The DJ microphone signal can be included or removed from the booth mix. The same mix feeds the recording outputs.



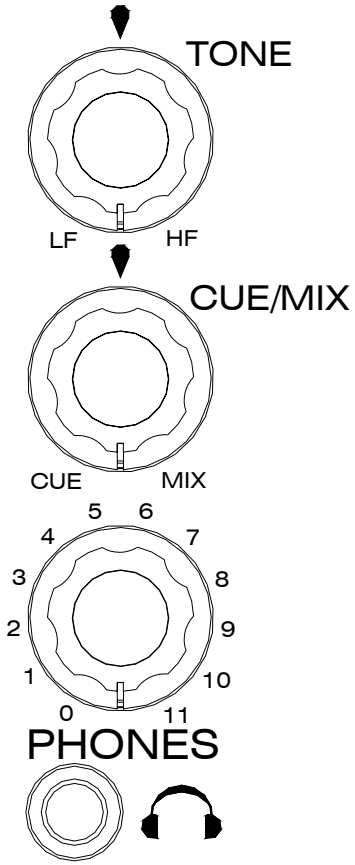
Mic To Booth switch This rear panel switch is recessed to protect it from accidental operation once set. Use a pen or similar pointed object to change its setting. Set the switch out (flush with panel) to include the microphone signal in the booth and recording mix. Set the switch in (pressed) for a music only mix.

Booth EQ Two controls adjust the frequency response of the overall mix. 10kHz is a shelving HF control, 100Hz is a shelving LF control. Both provide up to 6dB cut or boost. The response is flat at the centre positions. Where possible use only small amounts of EQ, or none at all. The LF control is tuned slightly higher than the master EQ to better match the performance of the speakers typically used. The booth EQ only affect the booth output. It does not affect the headphones or recording feeds.

Booth level Controls the overall level of the booth mix. It ranges from fully off to 0dB unity gain. For normal operation it should be used near to or at its fully clockwise position.

Headphones Controls

The DJ headphones is sourced from the booth mix and switched cue system. Headphone sockets are provided on both the front and rear panels.



Tone control This combines the LF and HF equaliser into one, easy to use control. At centre position the frequency response is flat. Turning clockwise boosts the high frequencies while cutting the lows. Turning anti-clockwise boosts the lows while cutting the highs. Use this to check the frequency make-up of the music you are cueing in the headphones.

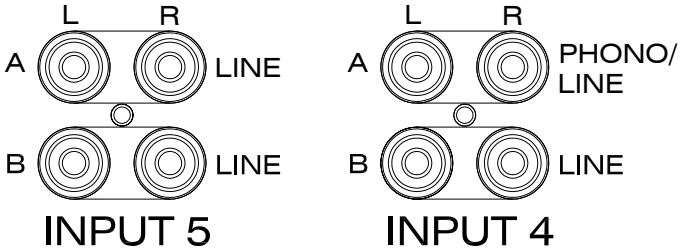
Cue / Mix This control balances the level of cue signal and booth (music) signal in the headphones. Fully anti-clockwise, only cue signal is routed. Fully clockwise, only booth mix is routed. At centre position, equal cue and booth signal is mixed together. Use the control when auditioning new tracks and experimenting with how they may sound when added to the mix.

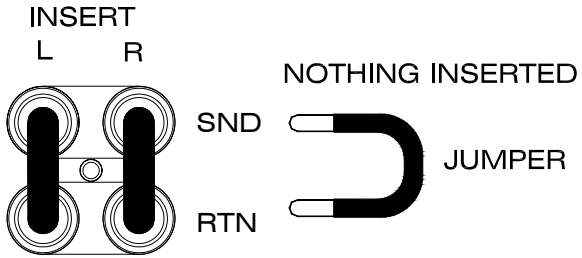
Phones level Controls the overall level of the headphones. It ranges from fully off to maximum volume.

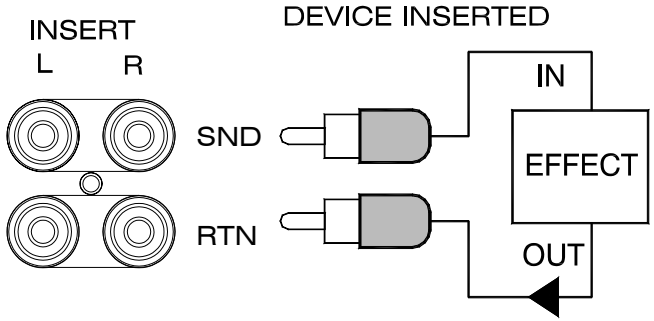
Headphones are available with different impedance specification, typically between 8 and 600 ohms. The **XONE:V6** is designed to operate with headphones in the range 30 to 600 ohms. For best performance we recommend the high quality 70 or 100 ohm type popular with top DJs.

Important Note about Hearing: To avoid damage to your hearing do not operate any sound system at excessively high volume. This also applies to any close-to-ear monitoring such as headphones. Continued exposure to high volume sound can cause frequency selective or wide range hearing loss. Make sure that your system complies with any venue sound level and noise regulations which may apply.

Channel Connectors







Each channel has two stereo inputs. CH1-4 provide line and RIAA inputs. CH5 and 6 provide two line inputs.

L and R inputs RCA phono sockets. The PHONO input provides gain and RIAA equalisation for turntable cartridges. Note that CH1-4 have internal option jumpers to disable RIAA if you want to use the inputs for additional line sources. The LINE inputs have a maximum gain of +10dB to accept signals as low as -10dBu. Note that there are internal option jumpers to reduce this gain to +6 or 0dB if preferred. Connect the ground wires of the turntables to the chassis ground terminals provided.

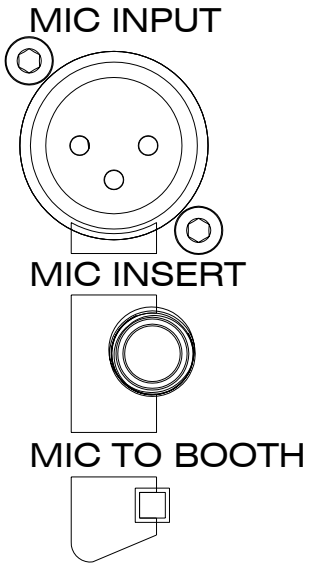
Insert A pair of RCA phono sockets for each side of the stereo signal lets you insert external processing such as an effects unit, equaliser or other channel signal processing device. This is done by breaking the signal path after the hi-pass filter and before the rotary fader. The insert operates at 0dBu.

With nothing inserted, the jumper plugs must be plugged in as shown so that the send signals are passed on to the return inputs. These plugs are provided with the console. To insert external equipment, first unplug the jumpers. Keep them in a safe place to use again in the future if needed. Use RCA phono cables to connect the insert send (SND) to the equipment input, and to connect the equipment output back to the insert return (RTN). Make sure the equipment is set to operate around 0dBu and has 0dB (unity) gain from its input to output.

Important ! **Make sure the jumper plugs are pressed fully in.**

A note about cables To ensure the fine standard of sonic performance for which the **XONE:V6** has been designed, use only the highest grade professional cables. Avoid the use of domestic grade cables.

Microphone Connectors

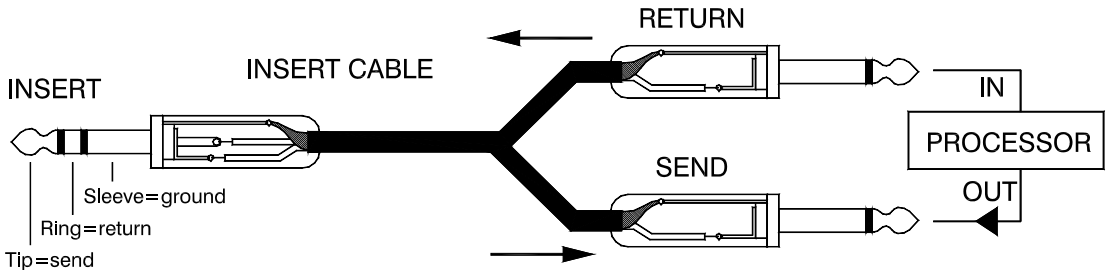


The microphone input is used for the DJ microphone. A hi-pass filter is built in to reduce low frequency handling noise, popping and proximity effect. An insert point is provided for patching in processors such as a compressor.

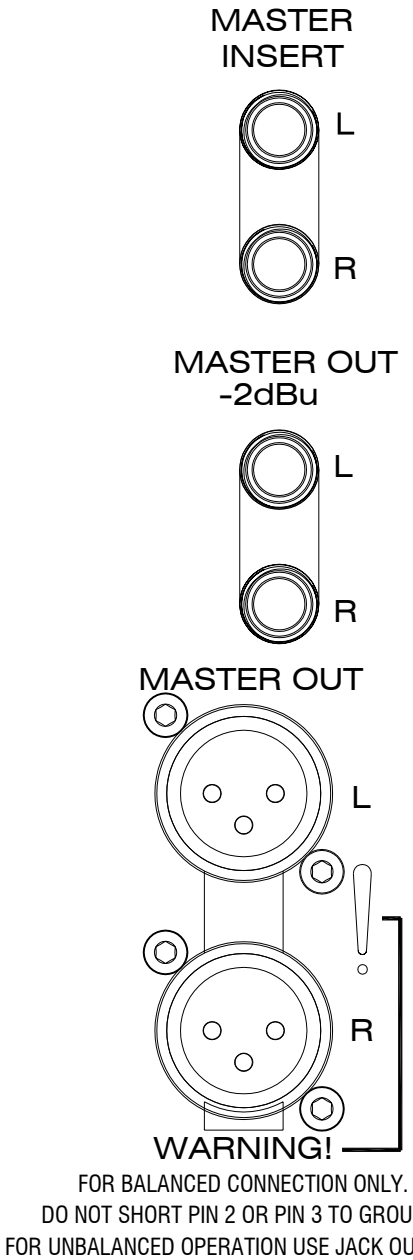
Mic input Balanced XLR, pin 2 hot. Maximum gain available is +60dB. We recommend you use a rugged, professional grade, dynamic microphone specifically designed for the vocal application. This should be low impedance (less than 600 ohms), balanced and have a cardioid (directional) response to avoid feedback problems.

Phantom power An internal option jumper is provided to select +30V to the XLR pins for use with microphones which require phantom power. Check the mic manufacturer's specification regarding these power requirements.

WARNING Do not connect unbalanced sources or cables to the XLR input when phantom power is applied. To avoid loud clicks always turn the mic level down before plugging or unplugging phantom powered microphones.



Insert Unbalanced TRS (stereo) jack wired tip = send, ring = return, sleeve = common ground. With nothing plugged in the signal is passed through internal switch contacts within the socket. The insert operates at 0dBu. Adjust the external equipment to operate around 0dBu and with 0dB (unity) gain from its input to output.



Master Connectors

The master mix to feed the house system is available on two pairs of sockets, XLR and TRS. A pre-EQ insert point is provided for patching in processors such as house equaliser and protection limiter.

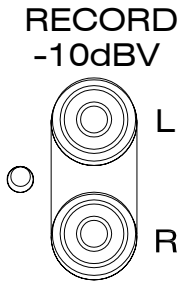
Insert Unbalanced TRS (stereo) jack wired tip = send, ring = return, sleeve = common ground. With nothing plugged in the signal is passed through internal switch contacts within the socket. The insert operates at -2dBu. Adjust the external equipment to operate around -2dBu and with 0dB (unity) gain from its input to output.

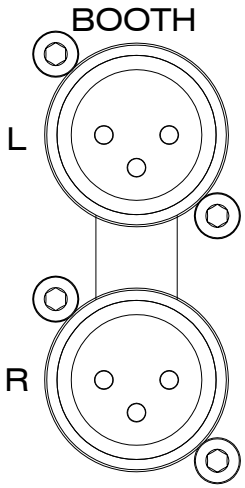
XLR output Electronically balanced, wired pin 2 hot. Output level is +4dBu when the MASTER level control is fully clockwise and the VU meters read '0'. Note that this can be changed to 0dBu by resetting internal option jumpers. The XLR output is designed to operate with balanced equipment such as speaker processors and amplifiers.

Only use the XLR output with balanced equipment. Do not short the pin 2 or pin 3 signals to ground as this will degrade the performance. For unbalanced connection use the TRS jack output.

TRS output Impedance balanced, wired tip hot. Output level is -2dBu when the MASTER level is fully clockwise and the VU meters read '0'. The TRS output can work with balanced or unbalanced equipment. It can be the main house feed, or it can provide an additional zone or auxiliary feed when the XLR output is used.

Booth and Record Connectors

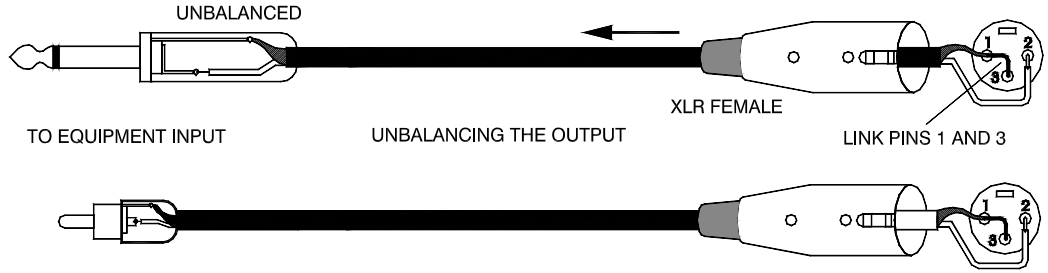




The XLR booth output feeds the DJ's booth amplifier / loudspeaker system. The record output can be used to make a stereo recording of the performance.

Booth output Balanced XLR wired pin 2 hot. Output level is +10dBu when the BOOTH level control is fully clockwise and the VU meters read '0'. The booth output is not affected by the MASTER EQ or level control. Connect to the amplifier input or speaker processor if one is used.

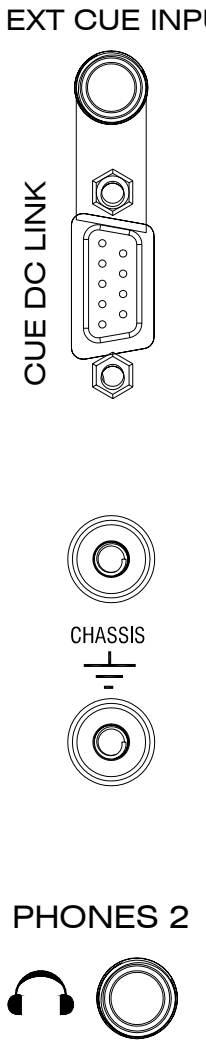
Although the booth output is designed for connection to balanced equipment, it can be used with unbalanced equipment by shorting the pin 3 (cold) connection to ground. Note that this does not apply to the master MIX OUT XLR connections which should not be unbalanced.



Record output RCA phono connectors. These operate at the lower line level of 316mV, -10dBV (same as -8dBu) which is suitable for connection to most 2-track recorders. The output is sourced from the booth mix but is not affected by the booth EQ or level control.

The booth and recording mix includes the DJ microphone signal only if it has been routed using the rear panel MIC TO BOOTH switch.

Cue, Ground and Headphones Connectors



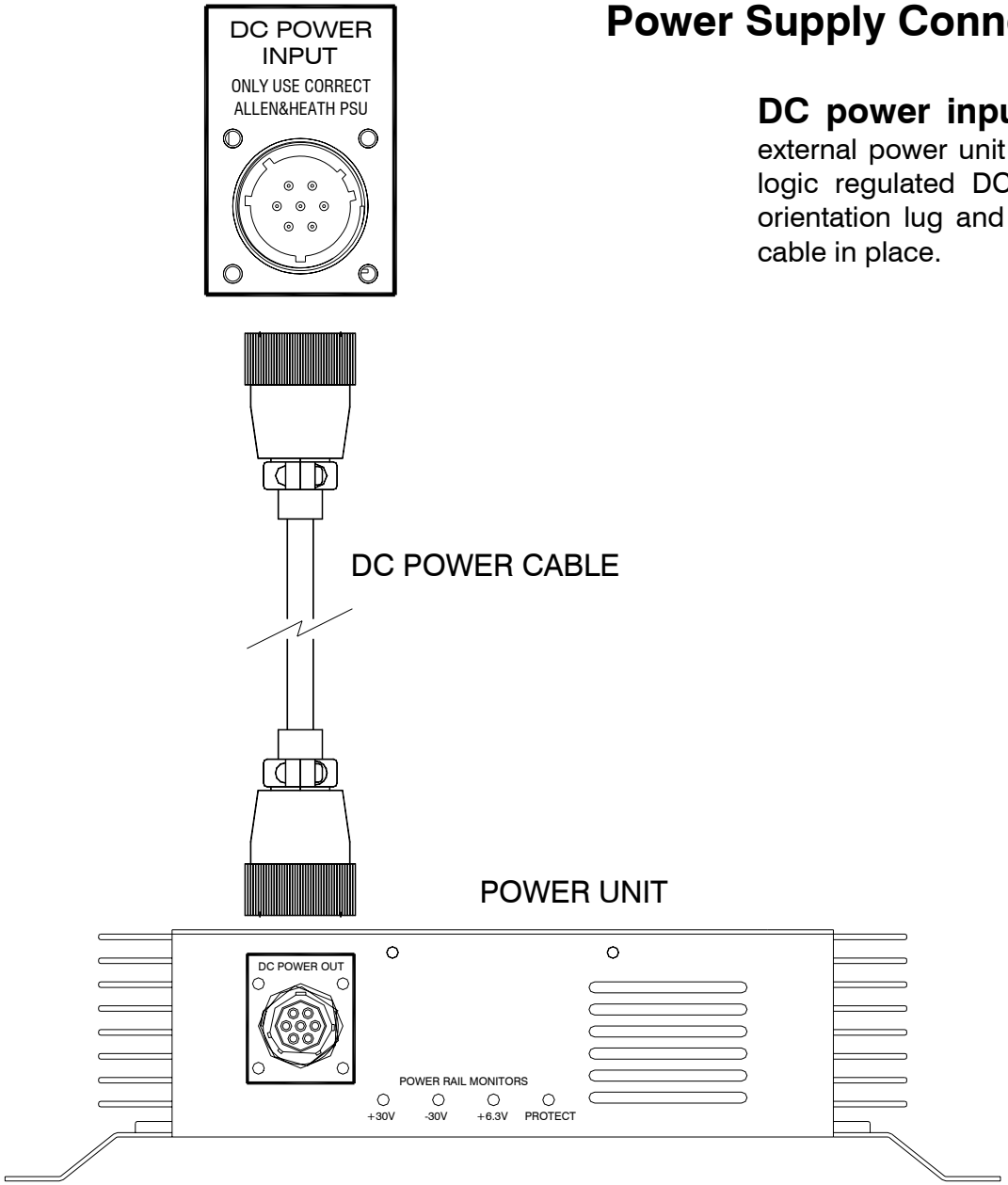
External cue input TRS jack break point for overriding the cue system with an external audio signal. The input is unbalanced with tip = left, ring = right and sleeve = common ground.

Cue DC link 9-pin D connector for linking the console cue logic system with external Allen & Heath accessories.

Chassis ground Two heavy duty binding posts are provided for ground wire connection. Use these to bond the turntables and other equipment chassis to the console chassis ground.

For safety it is important that all equipment grounds are connected to mains ground so that exposed metal parts are prevented from carrying high voltage which can injure or even kill the operator. It is recommended that the system engineer check the continuity of the safety ground from all points in the system including microphone bodies, turntable chassis, equipment cases, and so on.

Headphones Two headphones sockets are provided, one on the front panel, the other on the rear. This provides the choice as to where to plug in the DJ headphones.



Power Supply Connector

DC power input A heavy duty multi-pin socket for connection to the external power unit using the DC cable provided. This carries the audio and logic regulated DC power rails required for console operation. Align the orientation lug and press the plug in. Rotate the locking ring to secure the cable in place.

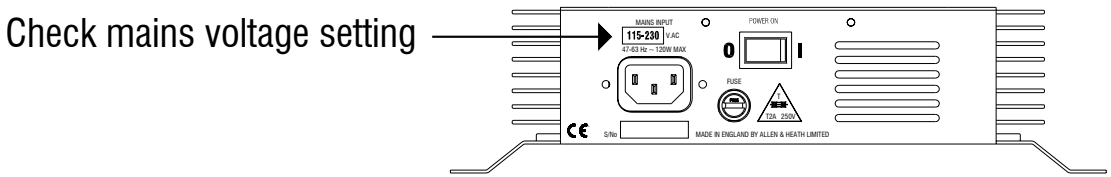
Only connect to the correct Allen & Heath power unit specified for the console. Do not attempt to modify the cable or power unit in any way. Failure to observe this may result in damage to the console.

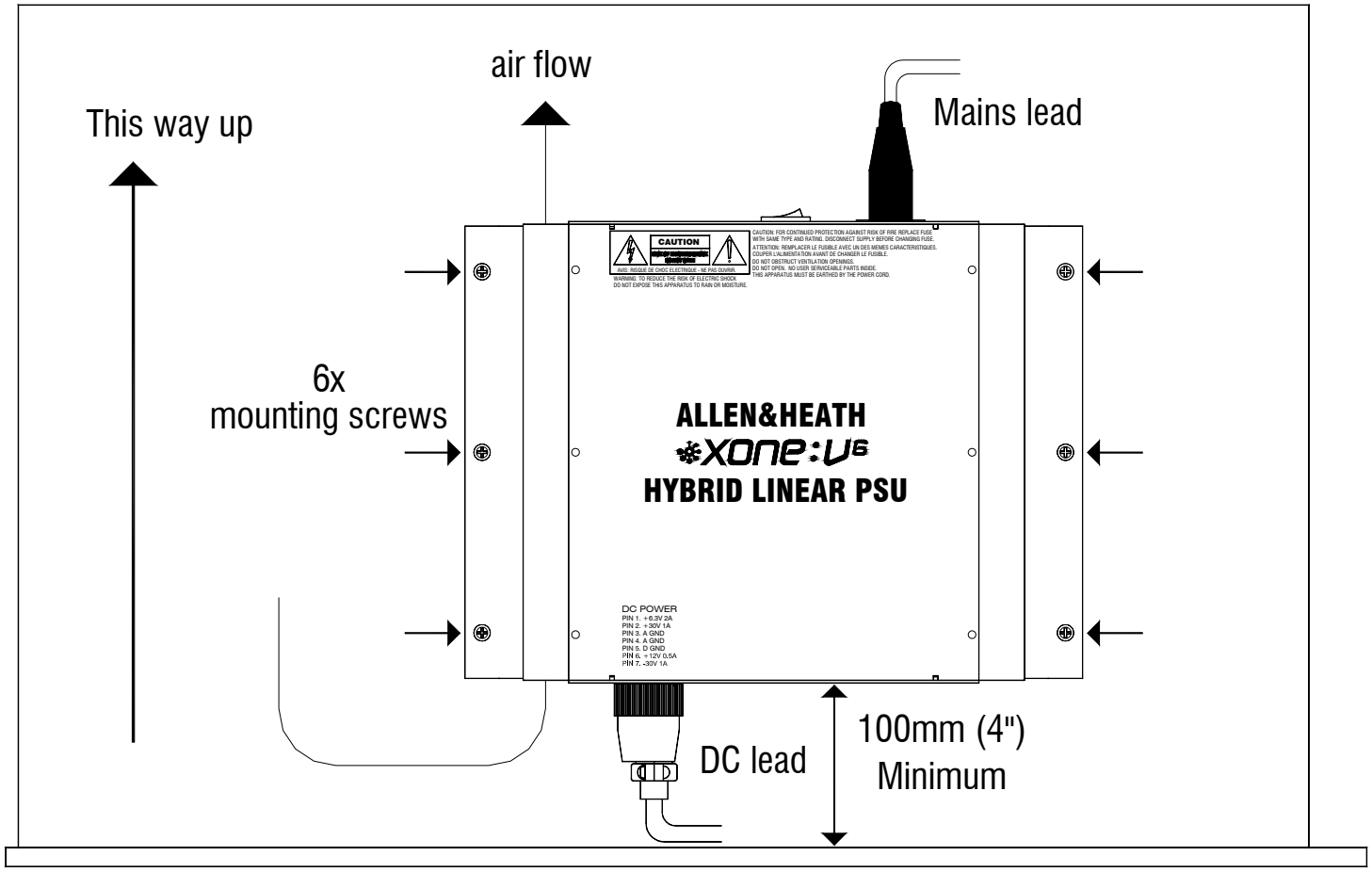
The power unit has the following status LED indicators on its front panel:

+30V and **-30V** Light when the audio circuit DC voltage rails are available.

+6.3V Lights when the logic DC voltage rail is available.

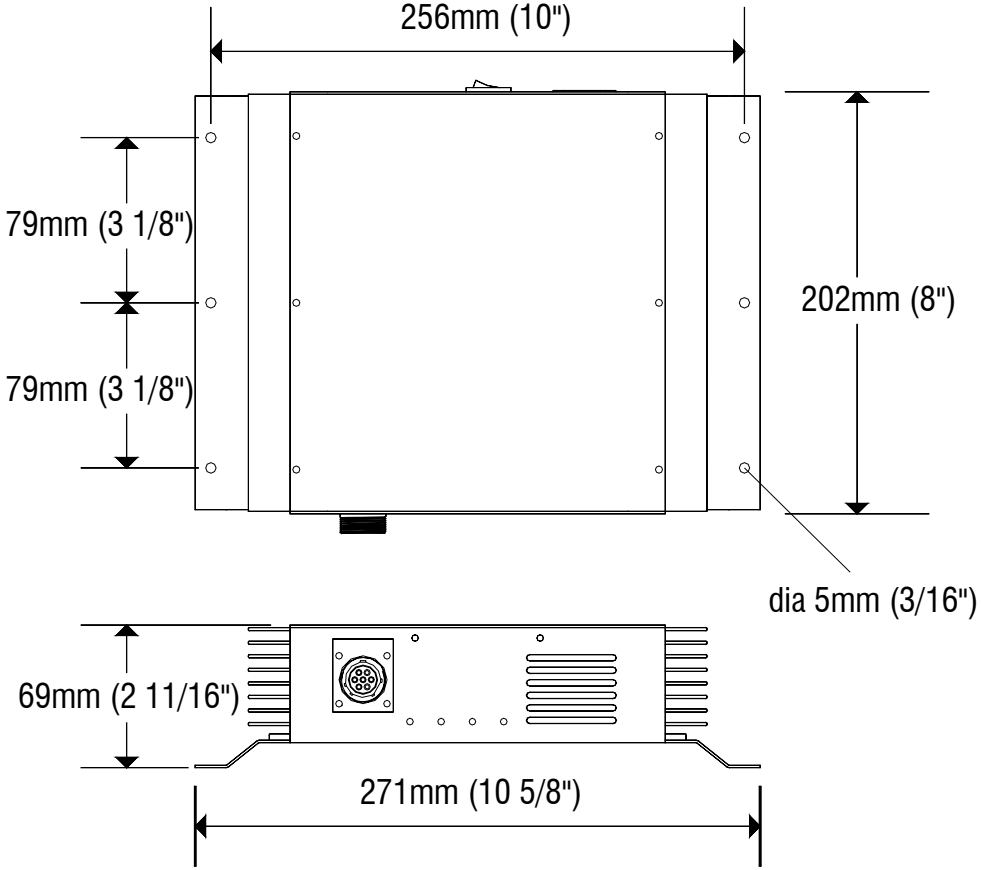
PROTECT Lights when the power unit is held in safe mode. This protects the console during the power up sequence, and if excessive current is drawn or a voltage fault detected.


Check mains voltage setting
MAINS INPUT
115-230 V AC
47-63 Hz ~ 120W MAX
POWER ON
O
I
FUSE
T2A 250V
S/No
MADE IN ENGLAND BY ALLEN & HEATH LIMITED


air flow
This way up
Mains lead
6x
mounting screws
CAUTION
ALLEN&HEATH
XONE:V6
HYBRID LINEAR PSU
DC POWER
PIN 1. +6.3V 2A
PIN 2. +30V 1A
PIN 3. A GND
PIN 4. A GND
PIN 5. D GND
PIN 6. +12V 0.5A
PIN 7. -30V 1A
DC lead
100mm (4")
Minimum

Installing the Power Supply Unit

To avoid damage to the power supply unit internal assemblies do not mount it on to any surface subject to resonance or vibration.



A separate high performance mains power unit is provided. This converts the mains voltage into the various DC power rails required by the console. Suitable mains and DC power leads are supplied.

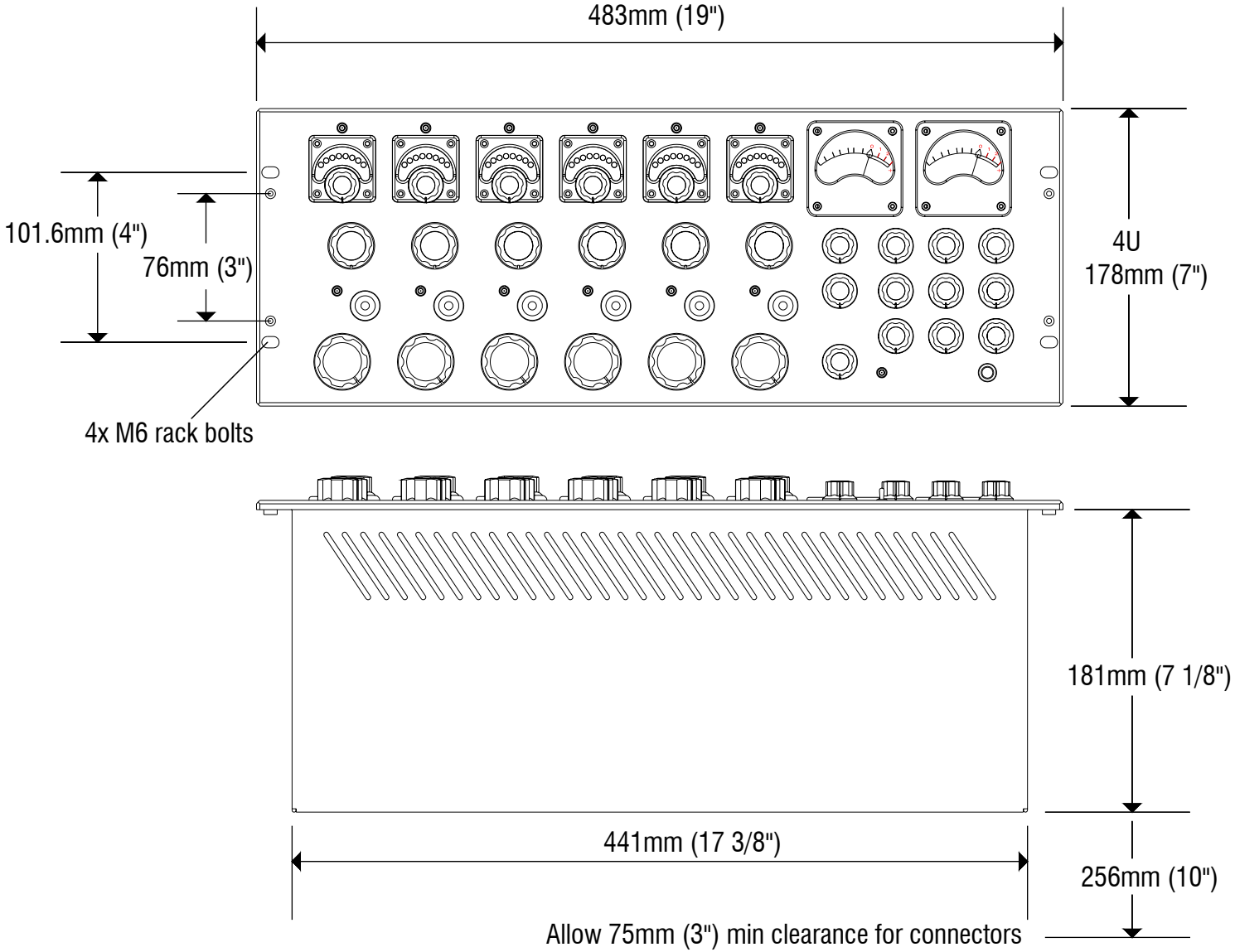
For permanent fixing, screw or bolt the power unit to a vertical surface using 6x fixings as shown. This ensures optimum cooling and performance. The fixing holes are 5mm diameter.

Check that the mains power switch is in its off (O) position. Plug in the IEC mains lead. Plug in the console DC power lead supplied. Ensure it is correctly orientated in the socket. Lock it in place by tightening the locking ring being careful to avoid cross threading it. Allow at least 100mm (4") clearance for the connector and cable beneath the unit.

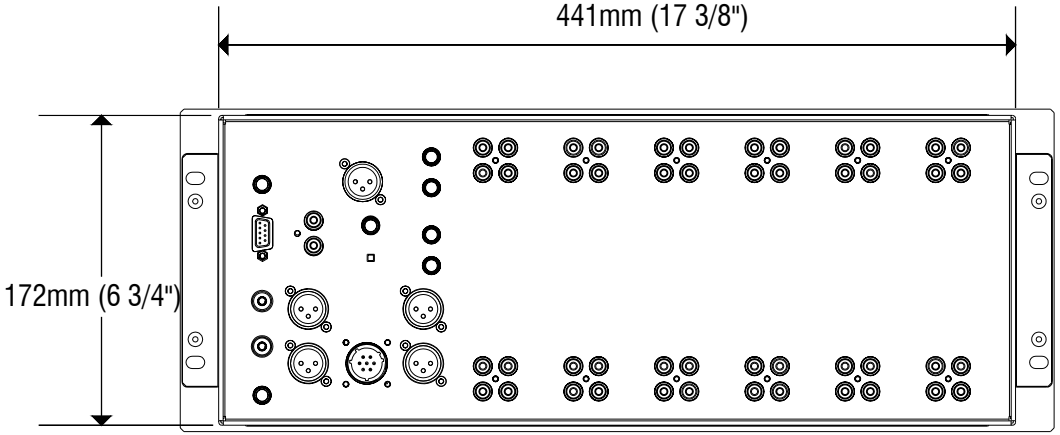
Make sure you have read the Safety Instructions printed in this guide and on the power unit case. Check that the unit mains voltage setting is correct.

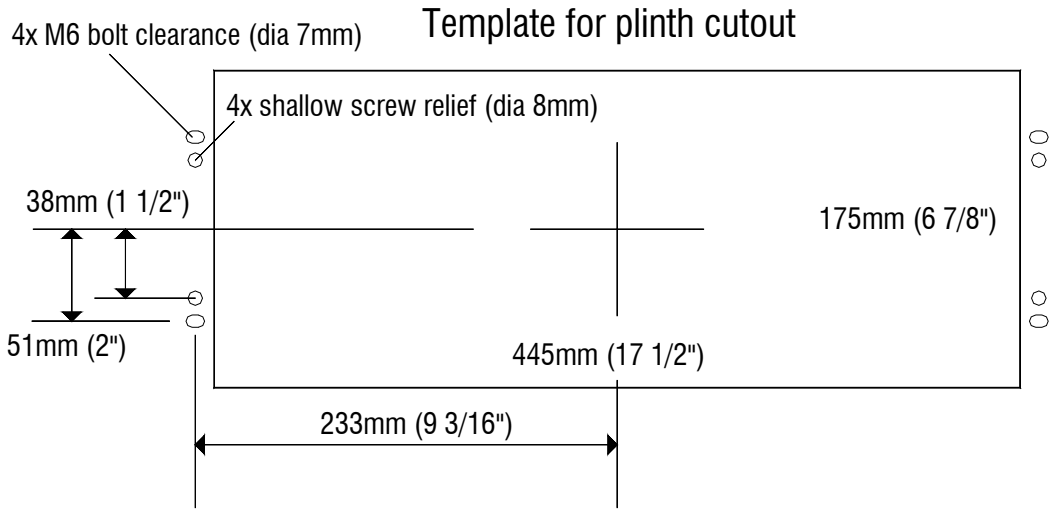
To avoid damage to the console circuits do not plug in the DC power lead while the power unit is turned on.

Check that there is adequate free air flow around the unit. Make sure that the ventilation slots are not obstructed in any way and that no items can fall into them. To avoid radiated interference do not install the power unit closer than 200mm (8") to the console.


483mm (19")
101.6mm (4")
76mm (3")
4U
178mm (7")
4x M6 rack bolts
181mm (7 1/8")
441mm (17 3/8")
256mm (10")
Allow 75mm (3") min clearance for connectors

Installing the Console





Rack mount The console fits into a standard 19” rack system taking up 4U height. Use 4x M6 bolts with plastic protective cups. These are usually supplied by the rack manufacturer.

Plinth mount The console can be mounted in a custom built plinth or other furniture. Use the cutting template detail shown here. The dimensions allow for the console cover fixing screws. Secure with 4x suitably long M6 bolts and nuts. Use protective cups to protect the console surface. Shallow reliefs may be required to allow for the face plate to cover screws.

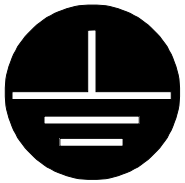
Due to the class A topology, lamps and valves used the console can run slightly warm. Do not obstruct the ventilation slots above and below the console. Ensure that there is adequate air flow around the unit.

To avoid radiated interference do not install the power unit closer than 200mm (8”) to the console.

To avoid damage to the console circuits do not plug in the DC power lead while the power unit is turned on.

Do not operate the console with its cover removed.

Do not drill any fixing holes through the console cover.



Grounding

The connection to ground (earth) in an audio system is important for two reasons:

- **SAFETY** - To protect the operator from high voltage electric shock, and
- **AUDIO PERFORMANCE** - To minimise the effect of ground loops which result in audible hum and buzz, and to shield the audio signals from interference pickup.

For safety it is important that all equipment grounds are connected to mains ground so that exposed metal parts are prevented from carrying high voltage which can injure or even kill the operator. It is recommended that the system engineer check the continuity of the safety ground from all points in the system including microphone bodies, turntable chassis, equipment cases, and so on.

The same ground is also used to shield audio cables from external interference such as the hum fields associated with power transformers, lighting dimmer buzz, and computer radiation. Problems arise when the signal sees more than one path to mains ground. A 'ground loop' results, causing current to flow between the different ground paths. This condition is usually detected as a mains frequency audible hum or buzz.

To ensure safe and trouble-free operation we recommend the following:

- **Have your mains system checked by a qualified electrician** If the supply grounding is solid to start with you are less likely to experience problems.

- **Do not remove the ground connection from the power unit mains plug** The console chassis is connected to mains ground through the power cable to ensure your safety. Audio 0V is connected to the console chassis internally.

- **Make sure that turntables are correctly grounded** Chassis ground terminals are provided on the console rear panel to connect to turntable earth straps.

- **Deal with ground loops** Should you experience hum or buzz caused by ground loops, check first that each piece of equipment has its own separate path to ground. If so, operate ground lift switches on connected equipment in accordance with the instruction manuals. Alternatively disconnect the cable screen at one end, usually the destination end. This breaks the offending loop while still maintaining the signal shielding down the length of the cable.

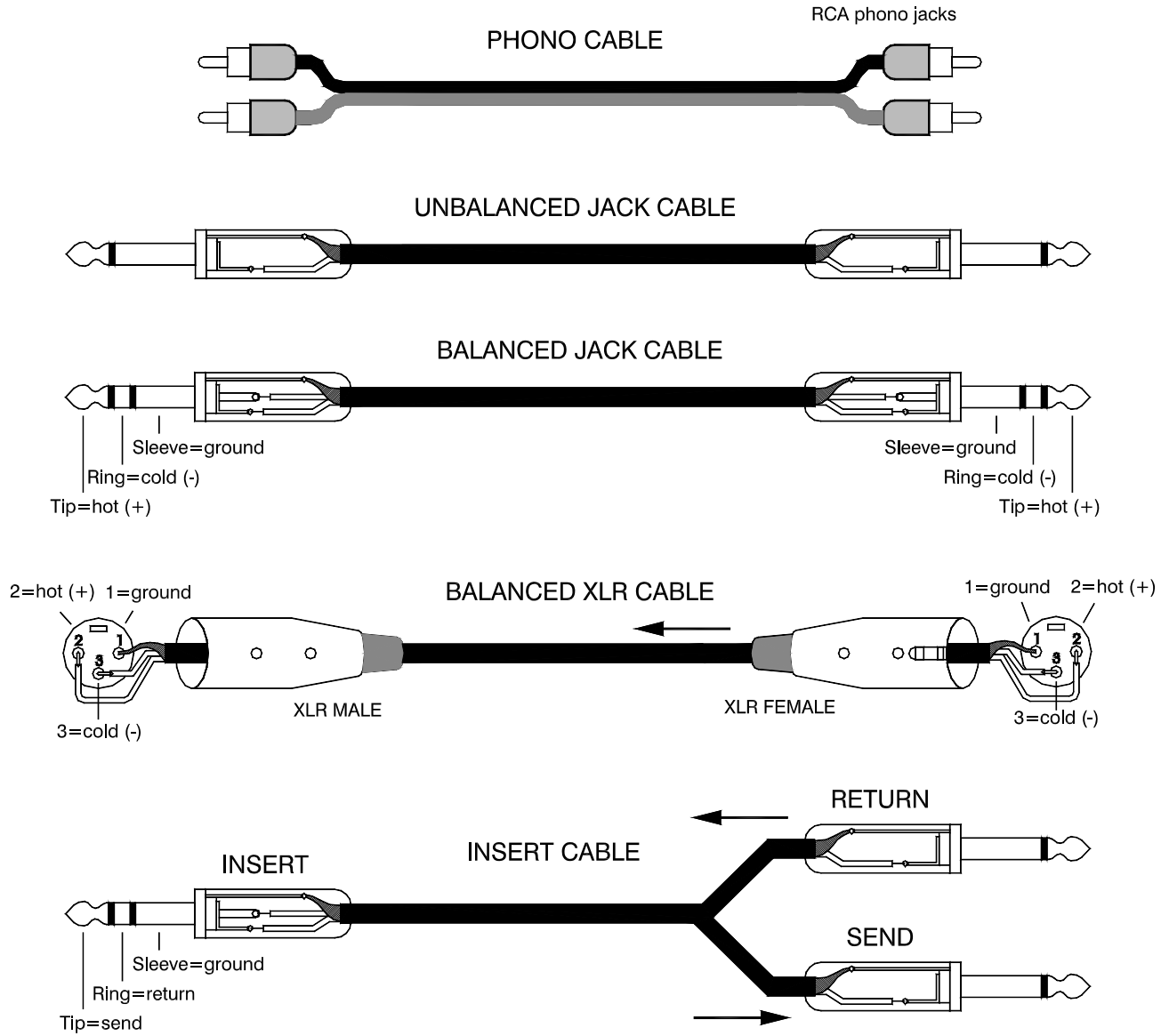
- **Use low impedance** microphones and line level equipment rated at 200 ohms or less to reduce susceptibility to interference. The console outputs are designed to operate at very low impedance to minimise interference problems.

- **Use balanced connections for the microphone and main outputs** as these provide further immunity by cancelling out interference that may be picked up on long cable runs.

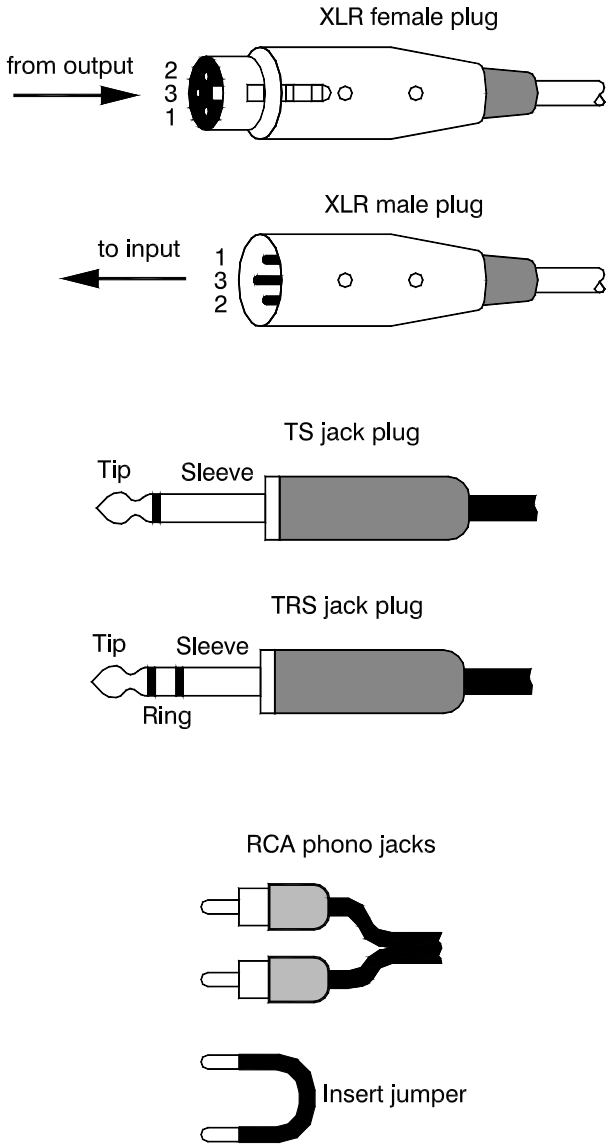
- **Route cables to avoid interference** To avoid interference pickup keep audio cables away from mains power units and cables, thyristor dimmer units and computer equipment. Where this cannot be avoided, cross the cables at right angles to minimise interference.

- **Use good quality cables and connectors** and check for correct wiring and reliable solder joints. Use professional grade short cables to connect your turntables to the console RIAA inputs. Allow sufficient cable loop to prevent damage through stretching.

Wiring the Cables



Connector Types



The **XONE:V6** uses professional grade 3 pin XLR, 1/4" TRS jack and RCA PHONO sockets.

The **XLR** connection should be used with balanced equipment such as microphones and feeds to balanced signal processors and amplifiers. This has 3 connector pins: Pin 1 = ground (screen), Pin 2 = signal hot (+), Pin 3 = signal cold (-). The male XLR is used for signal output, female for input.

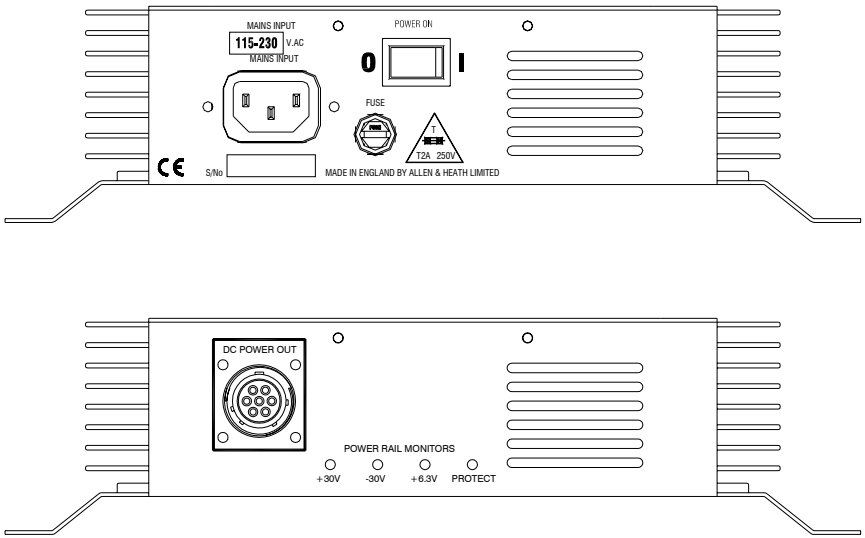
The **INPUT and OUTPUT JACK** connections can be used with balanced or unbalanced line level equipment. These are wired to work with either balanced 3-pole TRS or unbalanced 2-pole TS type plugs.

The **INSERT JACK** requires a single 3-pole TRS jack plug carrying both the send and return audio signals. Tip = send, ring = return, sleeve = common ground. The signals are unbalanced. Switching contacts automatically pass the signal through the insert socket when nothing is plugged in. A typical cable is shown in the diagram opposite.

The **RCA** phono connection is used to connect to equipment such as CD players, turntables and recording devices. It is unbalanced. A separate grounding wire may also be provided with turntables. The RCA phono is also used for the channel inserts. Insulated jumper plugs are provided so that the signal can pass through the sockets when the insert is not used. Removing the jumper interrupts the channel signal path.

To ensure best performance, we recommend that you use high quality shielded audio cables and connectors, and take time to check for reliable and accurate cable wiring and assembly.

Switching the Console On



The **XONE:V6** power unit has two mains voltage settings, 115-230V and 100V AC. First check that the setting is correct for your local mains voltage. This is marked on the power unit rear panel. The 115-230V setting senses the mains voltage level within the 115 to 230V range and automatically configures the power circuit mains transformer using relays.

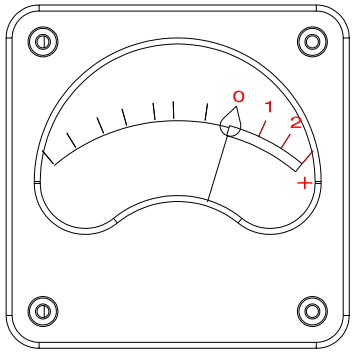
To avoid audible switch-on thumps, turn connected power amplifiers down or off before switching the console on or off. Ensure that the IEC mains plug is pressed fully into the rear panel socket and the DC cable locking rings are screwed in place before switching on.

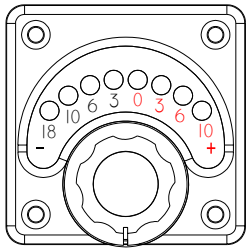
To switch the console on set the power unit POWER ON switch to its 'I' position. There is a delay of a few seconds as the unit configures itself and the voltage rails stabilise. During this time you should hear its relays click. After this time the +30, -30 and +6.3V indicators light to show that the power rails are ready.

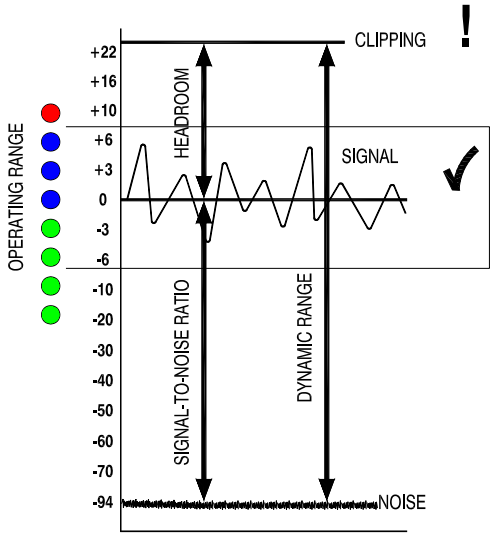
To switch the console off set the power unit POWER ON switch to its '0' position. The PROTECT indicator lights for a few seconds while the power rails turn off.

The PROTECT indicator lights when the power unit shuts down in safe mode. This happens during switch off, and also if a power rail fault such as short circuit or over-current is detected. Switch the console off then on again to restore normal operation. If the fault does not clear then contact your Allen & Heath service agent for advice.

Operating Levels and Meters







It is most important that the system level settings are correctly set. The best performance can only be achieved if the system levels are set within the normal operating range and not allowed to peak. Peaking simply results in signal distortion, not more volume. It is the specification of the amplifier and speaker system that sets the maximum volume that can be achieved. The human ear too can fool the operator into believing that more volume is needed. Be careful as this is in fact a warning that hearing damage will result if high listening levels are maintained. Remember that it is the QUALITY of the sound that pleases the ear, not the VOLUME.

The meters The channel meters are peak responding. The LEDs have a very fast attack and slower decay to display the music peaks. The main meters are the moving coil VU type with damped mechanical action displaying the average music level. It is typical for the VU meters to read lower than the LED type. Music averaging around '0' on the main meters may be peaking around '+6' or so on the channel meters. If the music is heavily compressed this difference may be much less. Reduce the level if the channel meter red '+10' LED lights or the VU meter needle is hitting '+3' on its scale.

Normal operating levels. For normal music the channel meters should range between –6 and +6 with main meters averaging around 0dB. This allows enough **headroom** for the loudest peaks before the signal hits its maximum **clipping** voltage and distorts. It also achieves the best **signal-to-noise-ratio** by keeping the signal well above the residual **noise floor** (system hiss). The **dynamic range** is the maximum signal swing available between the residual noise floor and clipping. The **XONE:V6** provides a massive 116dB dynamic range.

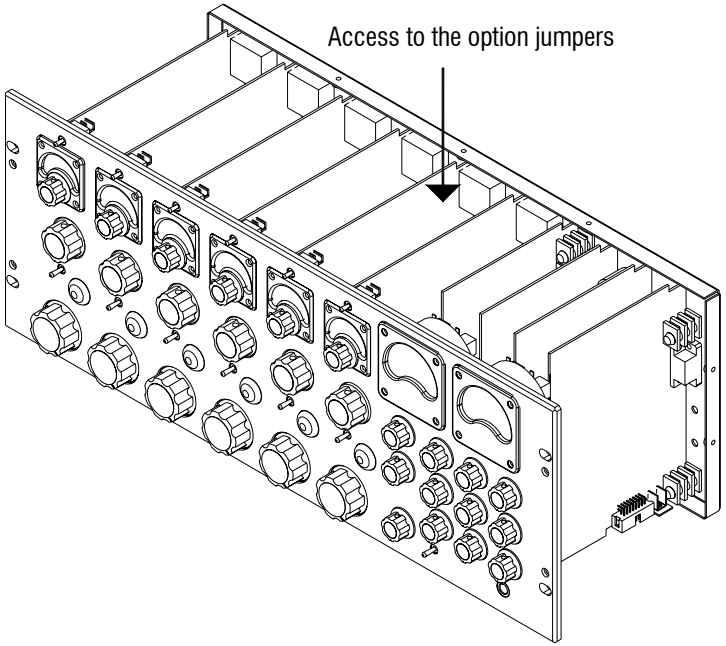
A final note … The human ear is a remarkable organ with the ability to compress or 'shut down' when sound levels become too high. Do not interpret this natural response as a reason to turn the system volume up further !

Internal Option Jumpers

The **XONE:V6** provides several user accessible internal jumper options. These are for specialist application or user preference and should not normally be needed. The factory default settings should satisfy most applications. The jumpers are plug-on and can be reconfigured quickly. However, it is necessary to remove the console cover to access the internal circuit assemblies. This requires that the console be unplugged and removed from its installation furniture. All the jumpers are accessible without removal of any internal assemblies.

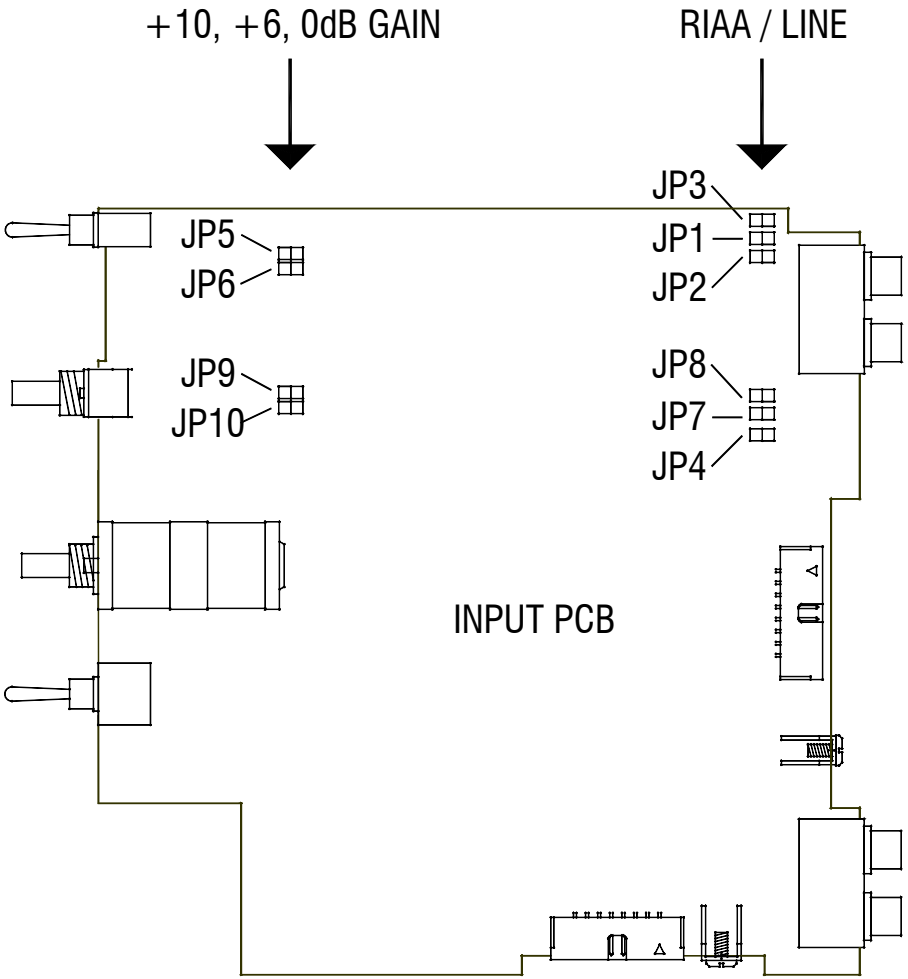
Before starting Unplug the power unit. Unplug all the cables. Remove the console from its rack or furniture. Ensure you have a suitably sized, clean work space with adequate lighting. Ensure you have a T10 Torx screwdriver to remove the cover screws.

Precautions Take care not to damage the panels or internal assemblies during the process. Ensure the jumpers are pressed fully into position and log your new settings before refitting the cover.



Removing the cover Use a T10 Torx screwdriver to remove the 4x front plate to cover fixing screws (M3x6mm). Also remove the 4x side, 3x top and 3x underside screws (M3x4mm). Carefully slide the cover back over the rear connector panel to reveal the circuit assemblies.

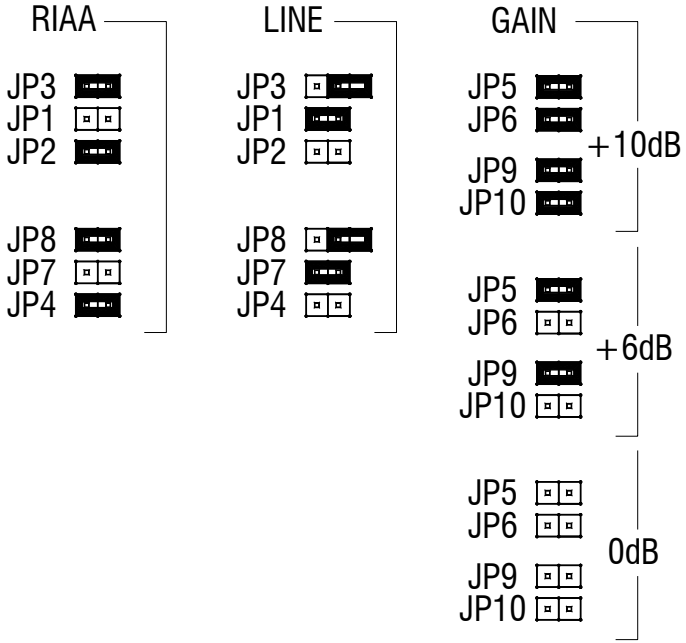
Input Channel Option Jumpers



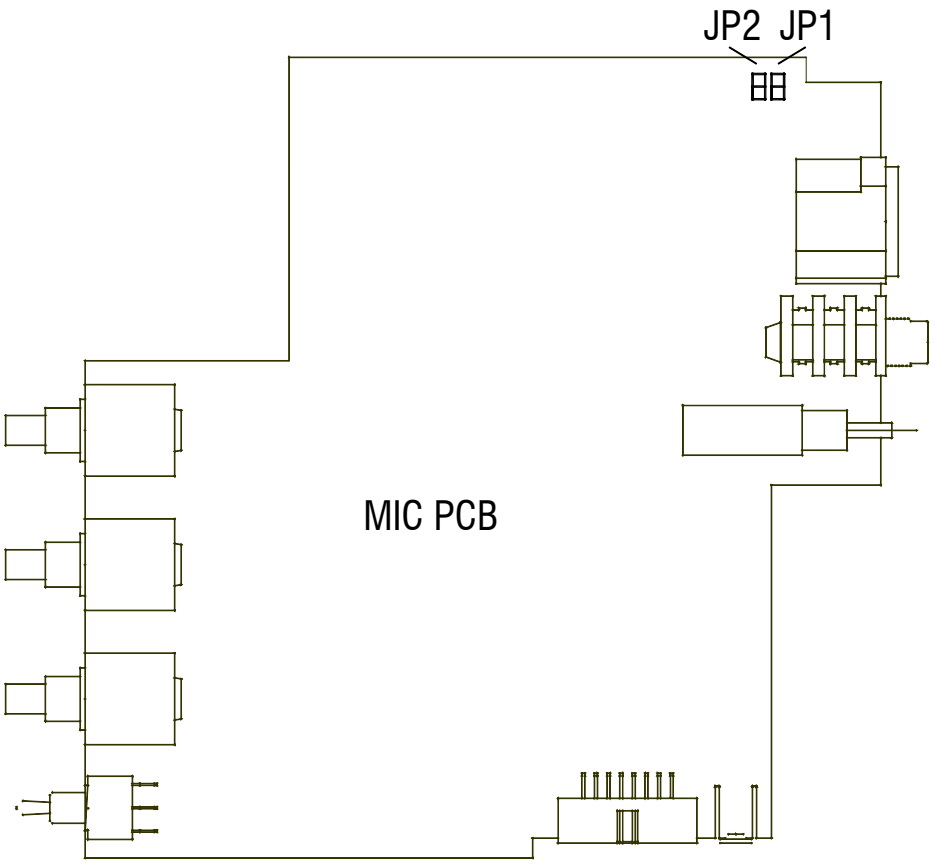
Plug on jumpers set the options required. Plug across the two pins to set. Plug on to just one pin to remove. This keeps the jumper available to be re-used later in the future if needed.

RIAA disable CH1-4. For RIAA gain and equalisation JP2, JP3, JP4 and JP8 are fitted. This is the factory default setting. To disable RIAA and use these inputs with line sources, remove those jumpers and fit JP1 and JP7 instead.

Gain setting CH1-6. The maximum preamp gain avaiable is set using these jumpers. For +10dB gain all four jumpers JP5, JP6, JP9 and JP10 are fitted. This is the factory default setting. To change this to +6dB gain fit JP5 and JP9 only. For 0dB gain remove all four jumpers.



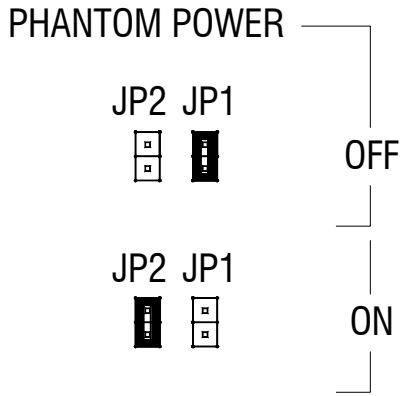
Microphone Option Jumper



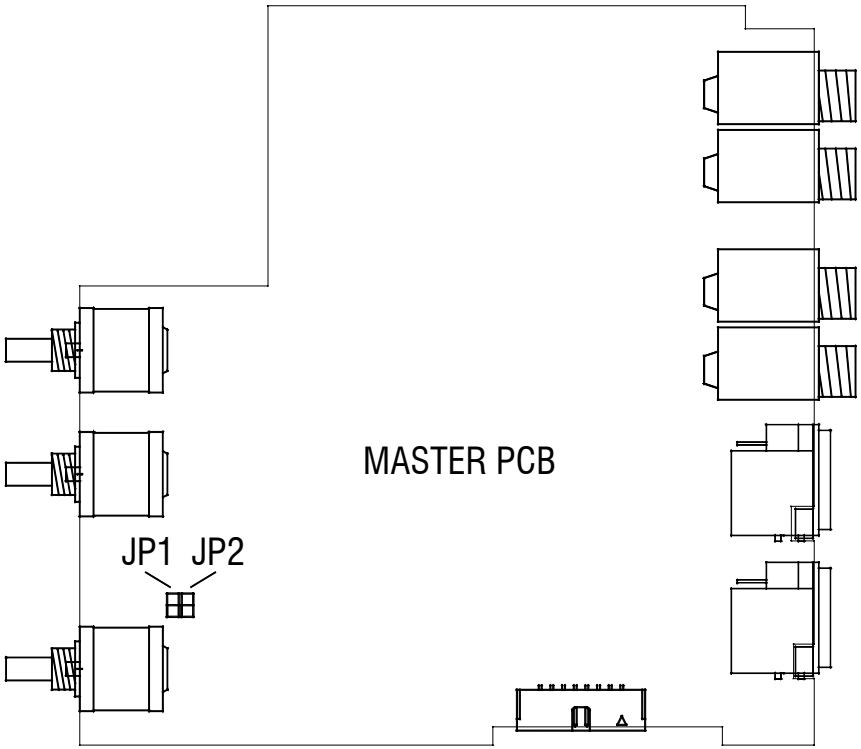
A plug on jumper sets the option required. Plug across the two pins to set. Plug on to just one pin to remove. This keeps the jumper available to be re-used later in the future if needed.

Phantom power 30V phantom power is disabled when JP1 is fitted. This is the factory default setting. Plug the jumper on to JP2 instead if you wish to turn phantom power on.

WARNING Do not connect unbalanced sources or cables to the XLR input when phantom power is applied. To avoid loud clicks always turn the mic level down before plugging or unplugging phantom powered microphones.

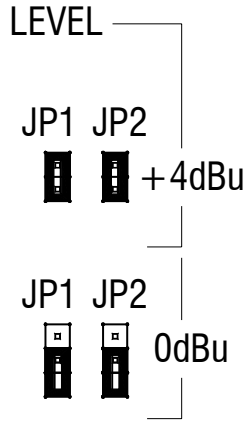


Master Option Jumpers

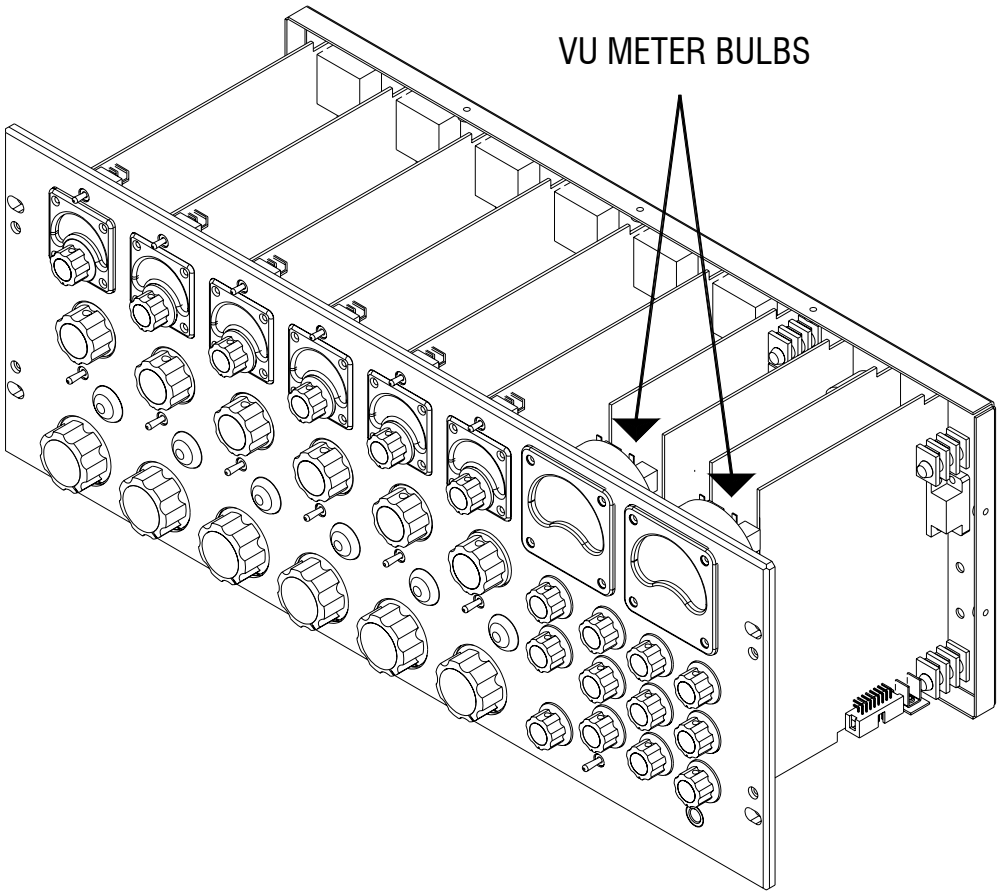


Plug on jumpers set the options required. Plug across the two pins to set. Plug on to just one pin to remove. This keeps the jumper available to be re-used later in the future if needed.

Master output level The output level with MASTER control at maximum position and VU meters reading '0' is +4dBu with JP1 and JP2 fitted. This is the factory default setting. To change this to 0dBu remove JP1 and JP2. Access these jumpers from below the console.



VU Meter Bulb Replacement



Each VU meter is illuminated using a filament bulb mounted in a clip behind the meter. The bulb is a long life type. If it needs to be replaced procede as follows:

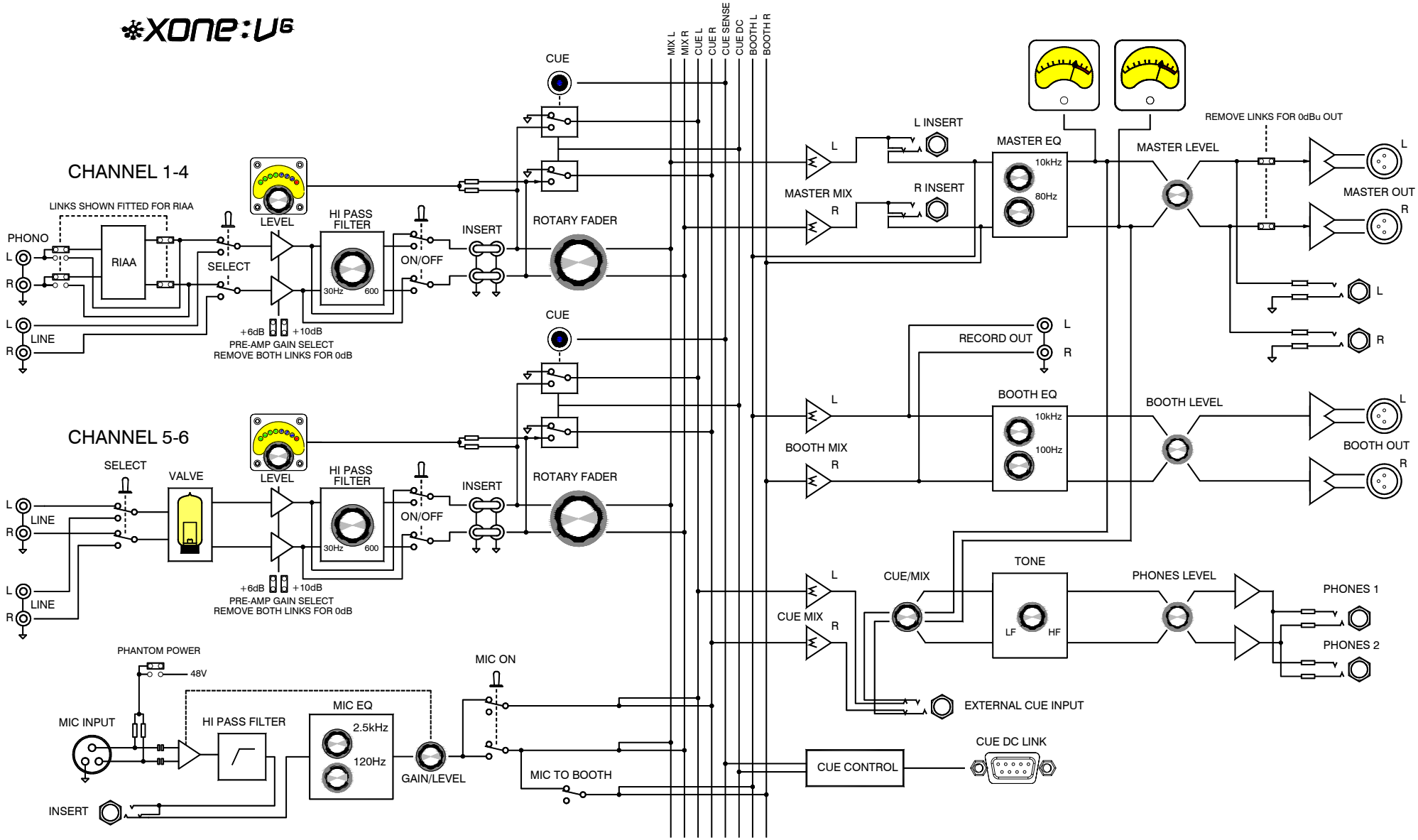
Unplug the cables and remove the console cover as described previously. Carefully unclip the old bulb. Press in the correct type replacement bulb. Refit the cover.

It is best to replace both bulbs at the same time. This ensures that they both maintain similar life.

Bulb type 12V 1.2watt 24mm festoon type

Allen & Heath part number AD5198

System Block Diagram



Technical Specification

CH1-6 Line Inputs

RCA L and R connectors
Level variable from off to +10dB gain (+6, 0dB options)
Impedance >10k ohm

CH1-4 RIAA Inputs

RCA phono L and R connectors
RIAA equalisation (line input option)
Nominal level 7-100mV
Impedance 47k ohms / 330pF

Channel Inserts

RCA phono connectors (jumper plugs provided)
Operating level 0dBu
Impedance Send <75 ohms, Return >10k ohm

Microphone Input

Balanced XLR Pin2 hot
Level variable from off to +60dB max gain
Impedance 2k ohm
CMRR -70dB 100Hz to 10kHz
+30V phantom power enable option

Microphone Insert

TRS jack Tip = send, Ring = return
Operating level 0dBu
Impedance send <75 ohms, Return >10k ohm

Master Output

Balanced XLR (for balanced connection only)
TRS jack (for unbalanced connection)
XLR operating level +4dBu (0dBu option)
TRS operating level -2dBu
Impedance <110 ohm

Master Insert

TRS jack Tip = send, Ring = return
Operating level -2dBu
Impedance Send <110 ohms, Return >5k ohm

Booth Output

Balanced XLR (for balanced or unbalanced connection)
Operating level +4dBu
Impedance <75 ohm

Record Output

RCA phono L and R connectors
Operating level -10dBV (-8dBu)
Impedance <500 ohm

Cue Input

TRS jack Tip = L, Ring = R
Operating level 0dBu
Impedance >10k ohm

Headphones Output

TRS jack Tip = L, Ring = R
30 to 600 ohms headphones, 70 ohms recommended
Power 480mW into 70 ohms, 150mW into 600 ohms

Channel Hi-Pass Filter

12dB per octave
Variable frequency 30Hz to 600Hz
On/off toggle switch

Microphone EQ

Vocal optimised LF and HF shelves
HF +/-15dB 2.5kHz shelf
LF +/-15dB 120Hz shelf

Booth EQ

Music optimised LF and HF shelves
HF +/-6dB 10kHz
LF +/-6dB 100Hz

Master EQ

Music optimised LF and HF shelves
HF +/-6dB 10kHz
LF +/-6dB 80Hz

Cue EQ

LF/HF cut/lift tone control
+ = HF lift / LF cut
- = LF lift / HF cut

Frequency response

Line in to Master out	+0/-0.5dB 10Hz to 30kHz
	+0/-1dB 8Hz to 40kHz

Maximum Output Level

Master output	+28dBu into >10k ohm
	+22dBu into >2k ohm
TRS output	+20dBu into >2k ohm
Booth output	+27dBu into >2k ohm
Record output	+14dBu into >5k ohm

Headroom

Channels	+26dB
Mix	+24dB

Distortion THD+N

Master output	<0.01% @ 0dBu
	<0.03% @ +10dBu
Valve CH5, 6	<0.1% @ 0dBu (2nd harmonic)
	<0.4% @ +10dBu (“)

Crosstalk Measured 100Hz to 10kHz

Rotary fader shutoff	<-90dB
Inter-channel	<-90dB
LR separation	<-64dB
Headphones to mix	<-90dB

Noise Measured 22Hz to 22kHz

Master XLR output	<-100dBu residual
	<-90dBu @ unity gain
Master TRS output	<-105dBu residual
	<-97dBu @ unity gain
Booth output	<-96dBu residual
	<-86dBu @ unity gain
Record output	<-99dBu residual
	<-98dBu @ unity gain
Line in to Master out	<-89dBu 200 ohm source
Phono in to Master	<-85dBu 200 ohm source
Mic EIN	<-127dB 50dB gain, 150 ohm

Meters

Channels	Peak reading 8 LED bar
	-18, -10, -6, -3, 0, +3, +6, +10
Main L,R	Moving coil VU, lamp illuminated

Parts

Rotary faders	Precision Penny & Giles
	Conductive plastic, oil damped
Rotary controls	Sealed, metal bodied Alps
Valves	ECC82 (12AU7)
Meters	Sifam classic design

Power Supply

External unit with detachable DC cable
Vertical mount with fixing brackets
Hybrid linear design
- Switched mode for mains voltage sensing
- Linear design for voltage rails
- +/-30V DC audio circuit rails

Mains input IEC 3-pin
- Wired for 115 to 230V or 100V AC
- 47 to 63 Hz operation
- Country dependent mains lead supplied
- 120W max power consumption
- Mains fuse T2.5AL 20mm 250V

Dimensions

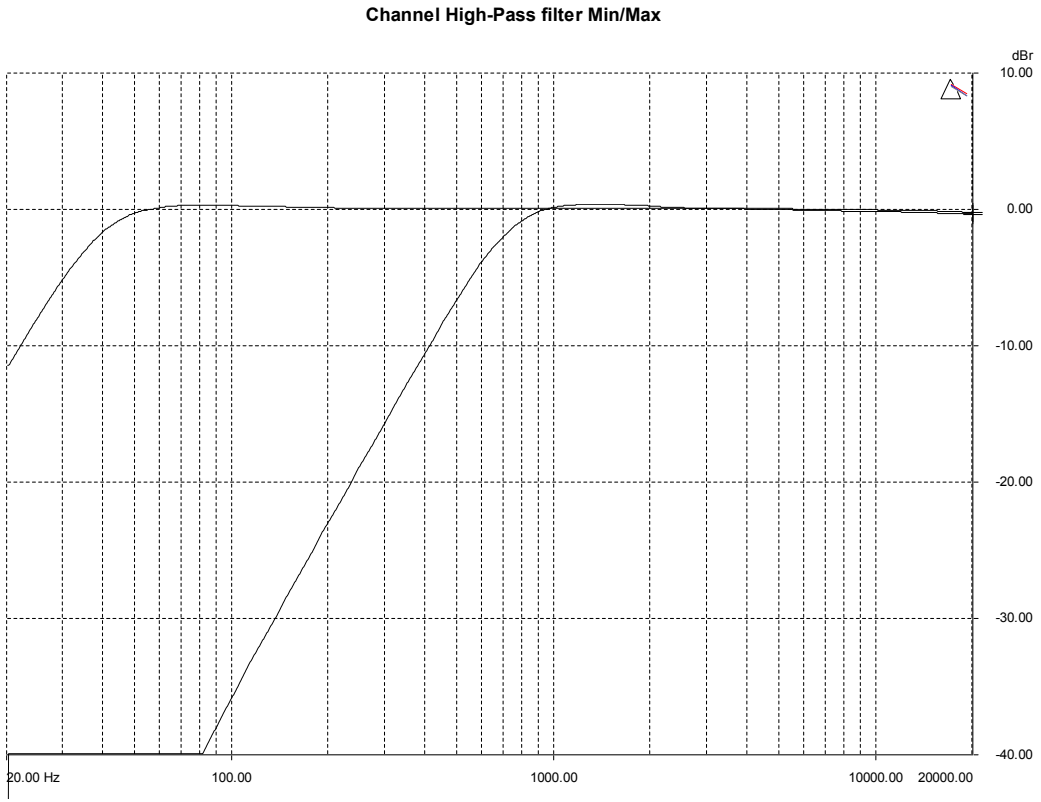
Console	Width 483mm (19”)
	Height 178mm (7”) 4U
	Depth 181mm (7 1/8”) from rear of face
Power unit	Width 271mm (10 5/8”)
	Height 202mm (8”)
	Depth 69mm (2 11/16”)

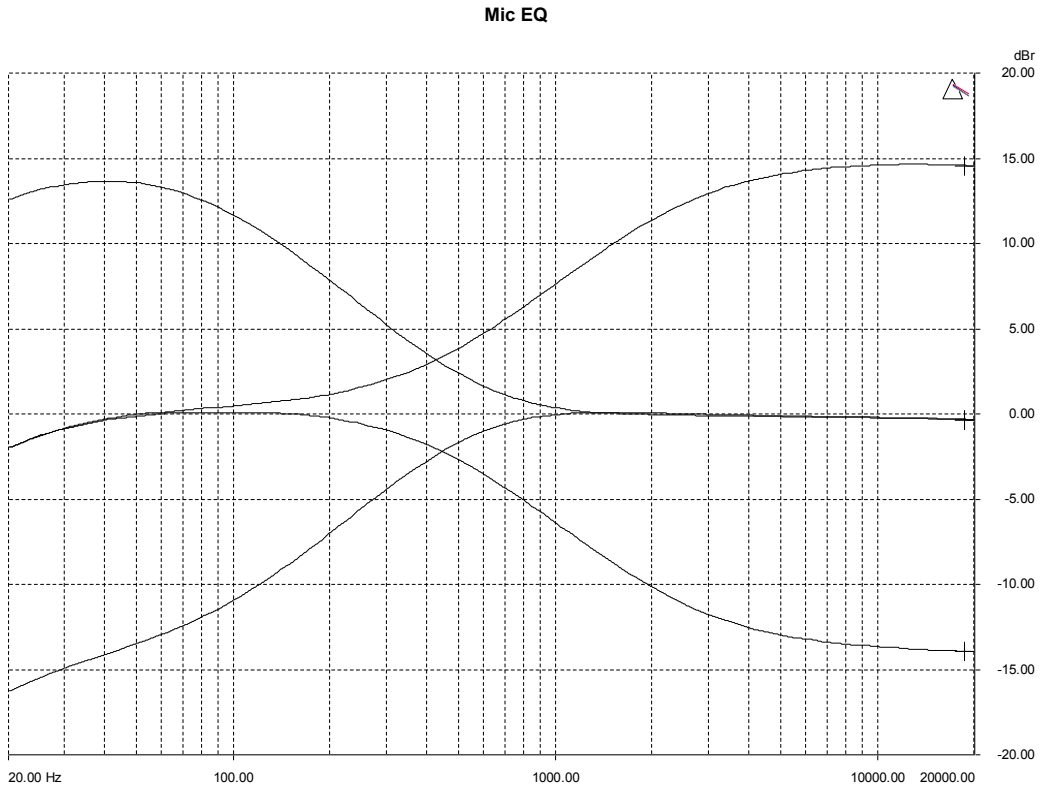
Weight

Console	7.5kg (16lbs)
Power unit	2kg (4.5lbs)

Channel Hi-Pass filter This graph shows the response of the filter at its minimum (30Hz) and maximum (600Hz) settings. The curve can be swept between these positions.

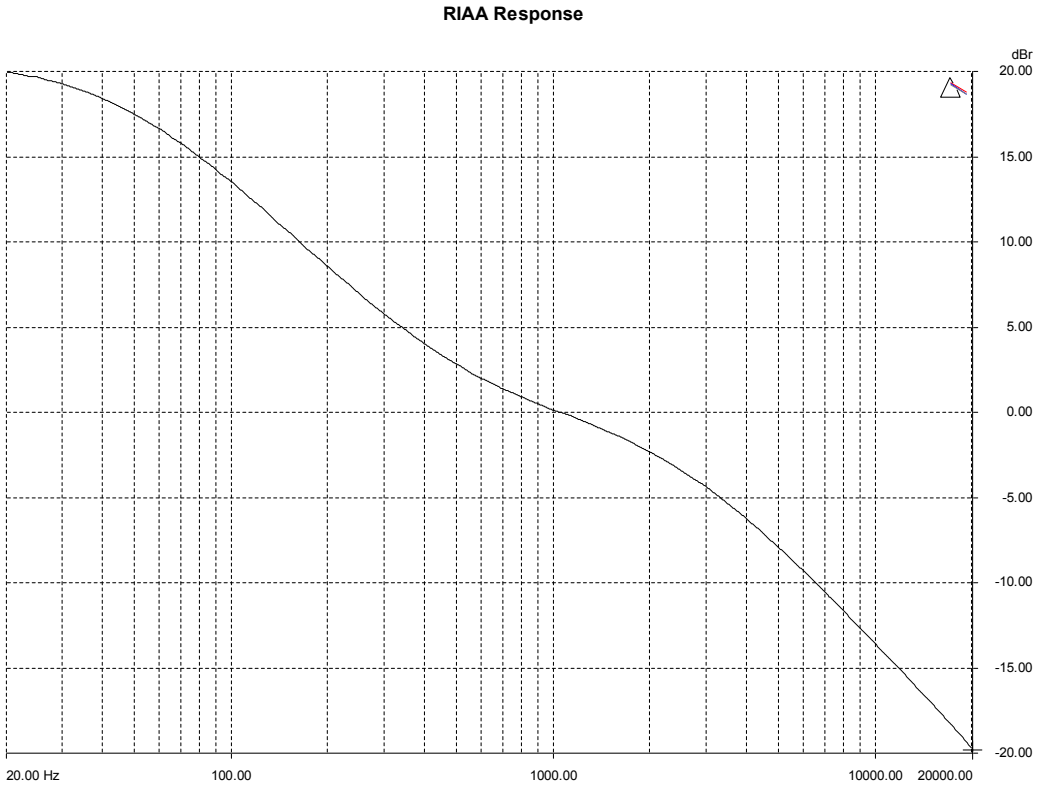
Microphone EQ This graph shows the response of the equaliser at maximum LF and HF boost and cut. The shelves are tuned for vocal equalisation at 120Hz (LF) and 2.5kHz (HF). Maximum cut/boost is 15dB.

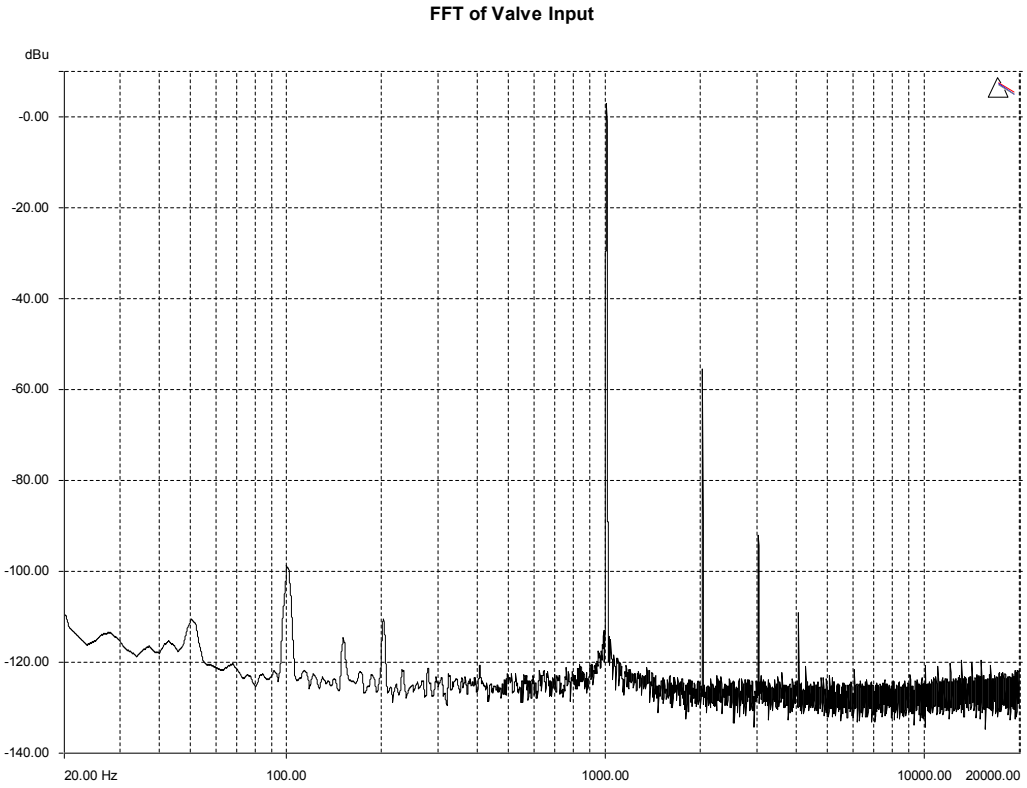




RIAA This graph shows the equalisation curve of the channel RIAA input. This compensates for the response of the pickup cartridge to result in a flat music response.

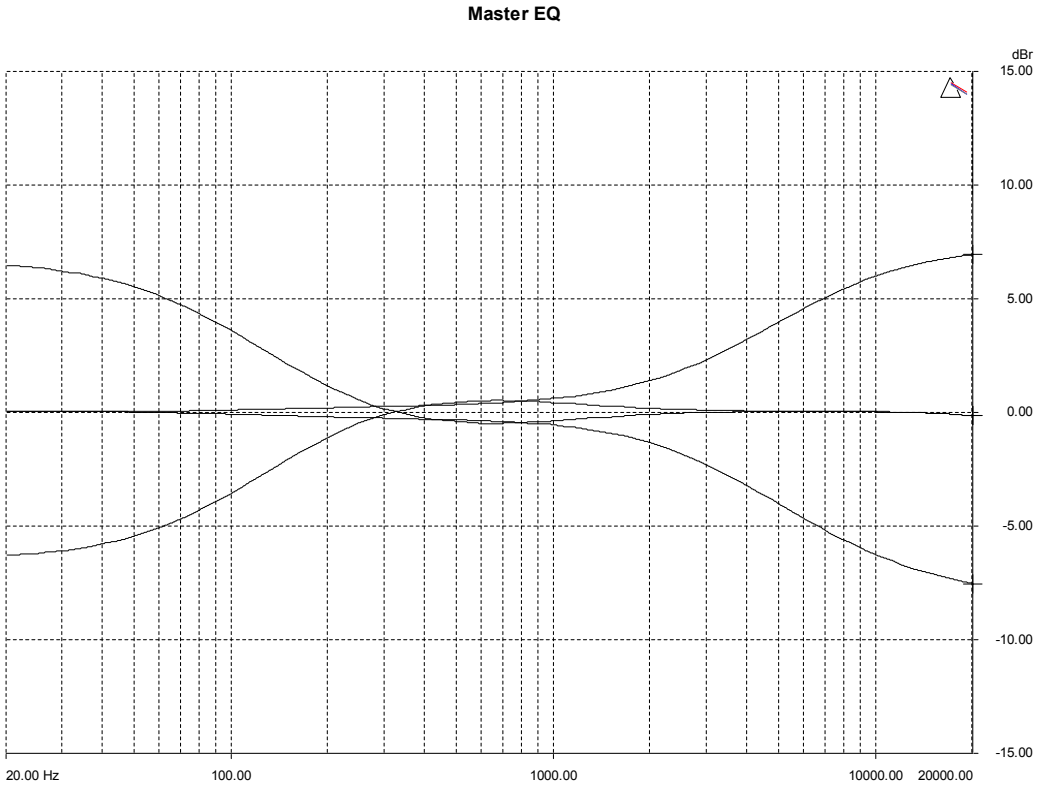
Valve channel distortion This graph shows the harmonic distortion associated with the valve preamp. The 1kHz test tone is shown, together with a strong second harmonic distortion. This accounts for the 'musical warmth' associated with valve circuits.

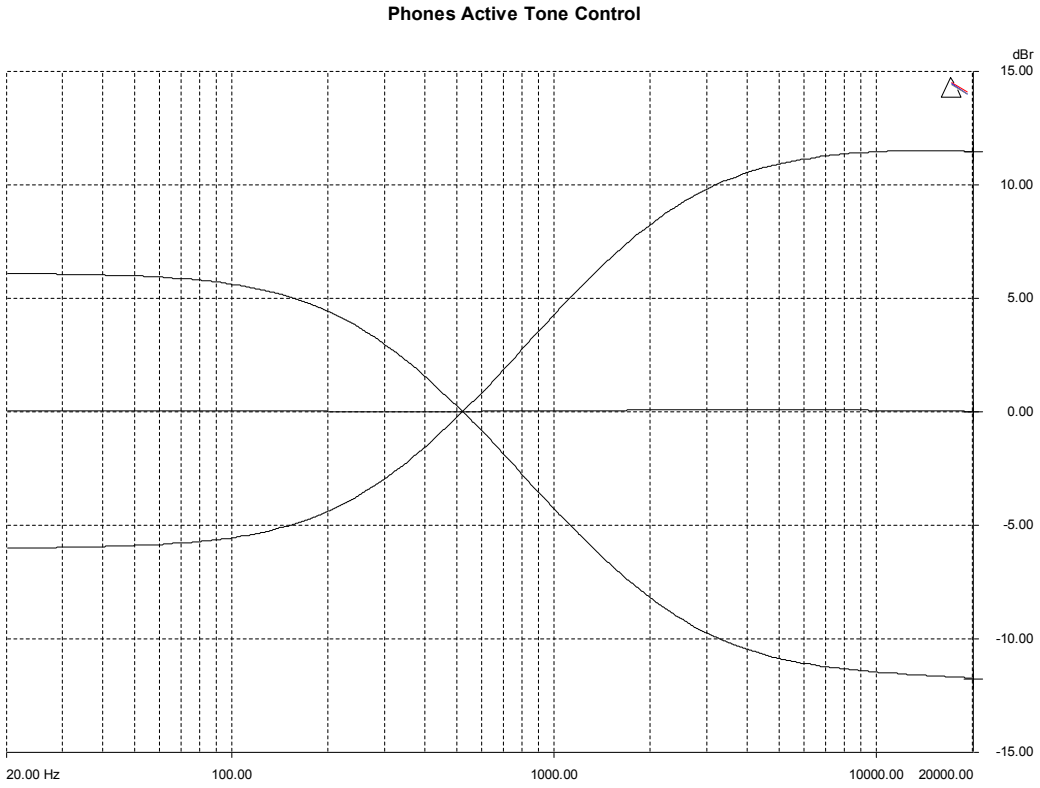




Master and Booth EQ This graph shows the response of the master equaliser at maximum cut and boost. It has 80Hz (LF) and 10kHz (HF) shelves with up to 6dB boost and cut. The Booth EQ is similar but has a 100Hz LF response due to the lesser response of typical booth loudspeakers.

Headphones EQ This graph shows the response of the equaliser at maximum TONE control positions. Fully anti-clockwise LF is boosted by 6dB and HF cut by 12dB. Fully clockwise HF is boosted and LF cut. The response is flat at mid position.





User Notes: